Industrial FINISHING

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...nited Red Feather Campaign in your town needs you ...olunteer solicitor in this fall's big drive for funds.

Your United Red Feather drive is a part of one great national effort to support more than 15,000 local health, recreation and welfare services. New inclusions this year are the reactivated USO and other voluntary health and welfare agencies which are needed because of the defense effort.

More than a million and a half volunteers are needed to do the job. Volunteer your time now to your local UNITED RED FEATHER CAMPAIGN. Next month, October, is RED FEATHER month.

SUPPORT THE ONE FOR A BETTER COMMUNITY . . .

TAKE ADVANTAGE OF THE OTHER FOR A BETTER FINISH

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VARNISH COMPANY

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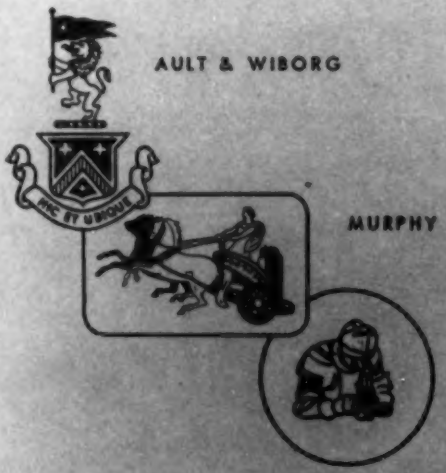
Interchemical Finishes

UNDERCOATS, VARNISHES, LACQUERS,
ENAMELS for METAL, PLASTIC, WOOD

To give your product a good start, give it an Interchemical Finish!



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● Ask any big-league pitcher about control. He'll tell you it is mighty important in winning ball games.

And in finishing room operations, control is important, too. Control of paint temperature and viscosity have much to do with the quality of the finish, and the volume of production.

No longer do you have to worry about daily and seasonal temperature fluctuations. No more fussing with solvents and retarders trying to meet changing conditions. Hot spray with the Bede Paint Heater is the perfect answer . . . assuring uniform, consistent results.

Bede Paint Heaters give you thermostatically controlled heat at the exact temperature best suited for the job and materials. With Bede Heaters you get finest quality results—fewer coats are required—waste, due to overspray is reduced—rejects are cut to a minimum—and volume production is increased. Investigate the many advantages today!

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Industrial FINISHING

W. H. ROHR, Editor P. C. BARDIN, Associate Editor

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SEPTEMBER, 1951
Vol. XXVII, No. 11

CCA

A monthly magazine for finishing room and paint shop foremen, production superintendents, chemists, purchasing agents and company executives of industrial plants where production cleaning and finishing are major operations in the manufacture of parts and products.

★

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27 TWENTY-SEVENTH YEAR OF PUBLICATION

High Temperature Oven. An infrared electric oven has been developed which is capable of heating certain types of metal products to 600° to 650°F., within one or two minutes. These ovens are said to have a heat capacity of 4 to 40kw. at 800 to 8000-BTU. per hour, per sq.ft.

These ovens may be used for thermal cleaning, that is as burn-off ovens, for hydrogen relief to prevent blistering of paint applied to zinc parts, and for fast drying of pieces leaving a mechanical washer.

* * *

Productive Maintenance. A new plan to help industry get the most productivity from its existing facilities is announced by the General Electric Co., Apparatus News Bureau, Schenectady 5, N.Y.

The plan is designed to assist maintenance engineers in setting up a program to minimize lost production time and forced idleness due to equipment failures. In addition, it will provide better spare parts control, smoother production flow, and enable industry to gain the greatest output from existing equipment.

To help the maintenance engineer materially, G-E offers a Productive Maintenance Kit, a file-size package of maintenance aids to guide him in setting up a working program. The kit contains an instruction bulletin, a special balance sheet for keeping data on each machine, planned outage forms, and check lists for motors, control and other equipment.

To supplement the kit, a new slide-film, "Productive Maintenance" will be available this Fall for showing through local G-E offices. The film explains how Productive Maintenance can benefit every industrial plant.

* * *

A Shock Absorbing Concrete floor has been developed in the University of Cincinnati Research Laboratory. This floor can be sanded, stained, waxed and polished, and is said to be almost as resilient as wood.

Dr. Fred O'Flaherty, executive director, said the new material was developed by Robert T. Howe an instructor at the University. It has passed all laboratory tests satisfactorily, and is now being put to practical tests in buildings.

* * *

Flexible Grease. A new high pressure grease that provides satisfactory lubrication at temperatures as low as 65°F. below zero to 250°F. has been perfected. It contains synthetic oils and for fortifying agents so that it maintains its consistency through the wide temperature range to provide complete lubrication of working parts.

* * *

Use of Color for decorating factory, office, school or home has a great influence on production, efficiency, study and comfort, according to the color research laboratory of Sun

(Continued on page 7)

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NO. 1900 RUBBING OIL and CLEAN-UP POLISH

Eliminates haze or blush and produces a clear, clean, dust-free finish that will not finger-mark.

FASTAINS

Newest Standard Shades of red or brown Mahogany, Maple or Cherry Light or Dark Walnut, and matches for any and every desired finish.

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Choice of colors should be left up to one who has talent and much experience—in other words, an expert.

* * *

Substitute Building Blocks called Ytong are announced by American Nayco Corp., N.B.C. Bldg., Cleveland, Ohio. They are made of low quality oil shale, limestone and coal mine waste. Resembling a petrified sponge in appearance, these blocks are said to provide excellent sound insulation, will not crack or rot, form a good plaster base and will resist dampness. Walls built with these blocks 8-in. thick are considered fireproof.

* * *

Heat Resistant Paint called Sicon has been developed. It is said to retain its adhesion and color stability under temperatures as high as 1000° F. It is available in most colors and may be brushed, dipped or sprayed.

* * *

Coal, Gas or Oil. Three new models of automatic heating units that will burn coal, gas or oil (protection against shortages of any particular fuel) have been introduced by United States Radiator Corp., Detroit, Mich.

* * *

Electrical Dry-Out. In the wake of the recent Midwest flood an instance came to light in which electric heaters proved they could take care of themselves and help get a water-logged plant going again. Here's how the

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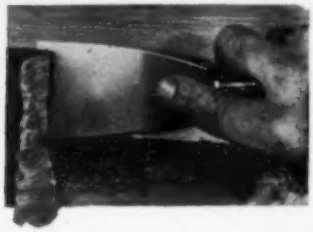

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NO-WASH REMOVER almost does the job by itself! Thoroughly reduces tough finishes to a soft, easily removed mass—no hard scraping or sanding.

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We are interested in stripping finishes from

.....

Type of finish .....

Name .....

Company .....

Street .....

City ..... State .....

job was done when waters receded at Sealright Co., Inc., Kansas City, Kansas, container manufacturers.

Four Chromalox radiant heaters, normally used to dry ink on cardboard, were re-wired in series and allowed to dry themselves at a low heat. They were then installed in a temporary insulated plywood oven. An electric fan was used to circulate air in the oven, making it possible to hold the temperature constant at 200° F.

Operating continuously, 24 hours a day, the oven dried out 300 wet motors (75% of the plant's total) and various other equipment in little more than two weeks. After that the radiant heaters were returned to their former occupation.

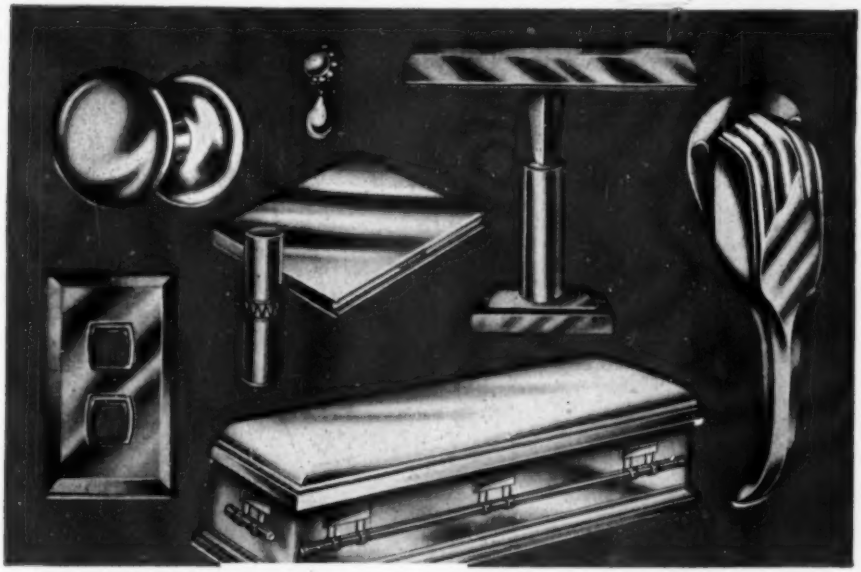
* * *

Pre-Coated Sheet Metal. Metal coils, pre-coated in color and precision slit to exact width, are providing a means of facilitating production and reducing manufacturing costs in a number of industries. The new product, trademarked under the name "Enamelstrip" is produced by Enamelstrip Corp., Allentown, Penna.

Enamelstrip is remarkable in its versatility and adaptability to any number of industrial uses. Coils of coated metal are available in cold-rolled steel, electro-galvanized steel and electrolytic tin plate, brass, zinc, and aluminum, in any desired color or shade, coating on one or two sides. The Enamelstrip process, which binds the adhesive color coating to the metal, enables the coil to withstand the stresses of drawing, bending, forming and fabricating without cracking or peeling. The chemically treated enamel coating provides remarkable flexibility and adhesion.

* * *

Hidden Corrosion. A method of detecting it will be announced at a meeting of The Electrochemical Society in Detroit, October 9-12.



NOW... simulate copper, brass and bronze on products like these with M & W PLATELUSTRE

Don't let critical metals put a *needless* crimp in your production!

Take zinc or steel—apply a coating of one of the new PLATELUSTRE finishes. You wind up with products and parts that look so much like copper, brass and bronze that *the eye can scarcely tell the difference!*

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It's the most revolutionary improvement ever developed in spray painting. It's electrostatic atomization and electrostatic deposition.

On most production lines, the No. 2 Process gives 25% to 75% more pieces per gallon than any other spray finishing system. And, the increase will be much larger over conventional hand spray methods.

- NO OVERSPRAY TO BE EXHAUSTED!
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We invite you to learn the cost-reducing and time-saving secrets of BURDETT "RADIANT-HEAT" Industrial Ovens, without one cent of cost to you. Bring in your product and the paint you are currently using. We will put a test-run through our equipment for you and establish comparative figures that will prove, without a doubt, that there is no quicker nor more economical method of heat processing. This test-run offer includes any HEAT problem, whether it is paint drying, enamel or lacquers, flash-coat drying, burn-off, core-baking, water dry-off or food processing.

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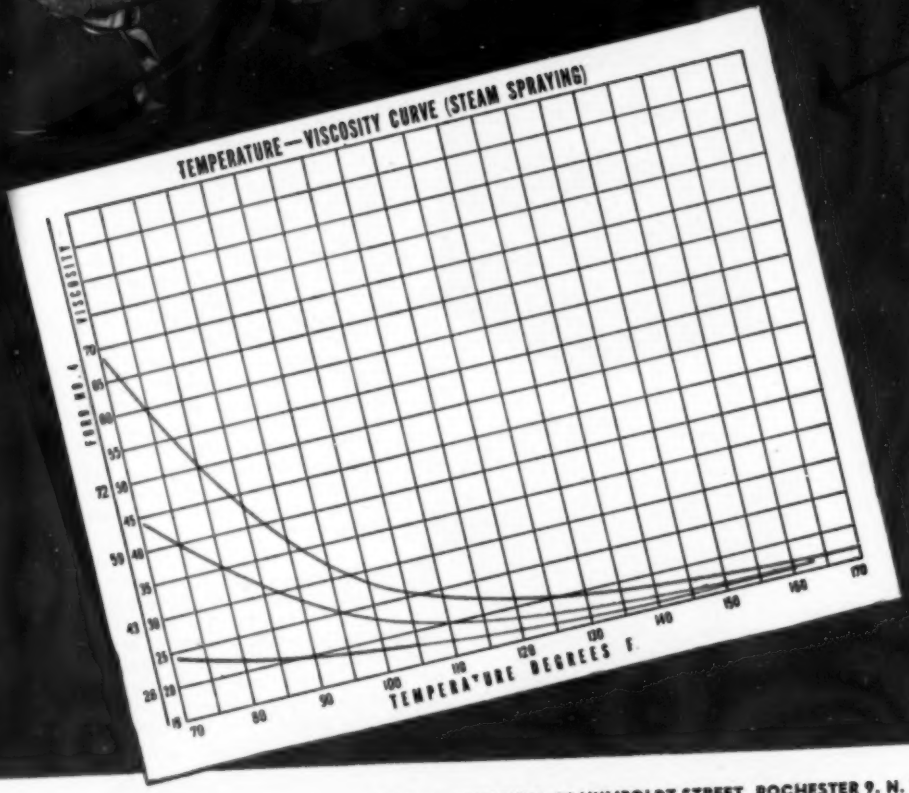

KELLOGG DIVISION, 94 HUMBOLDT STREET, ROCHESTER 9, N. Y.

Brake Shoe

# of finishing materials with STEAM spraying

Operating figures demonstrate that the new steam spraying process probably can save you time and money in your finishing operation. Our production line systems installed to date indicate that you can save up to 10-20% of expensive basic material, and even higher percentages of solvents and thinners, these 2 ways:

1. By heating material at the point of atomization. The temperature-viscosity chart opposite shows what happens to the viscosity of finishing materials as temperature rises. Despite initial viscosities ranging from 25 to 70 at 70°F., due to varying percentages of solvent, all three samples thin down to about 17 at 160°F. Thus by heating it is possible to spray materials with but a fraction of the normal amount of thinner. Finishing materials quickly revert to their original viscosity upon striking the surface, permitting the application of thicker coats in one pass of the gun without sags or runs.

2. By reducing overspray and atomization loss. Materials sprayed with compressed air tend to "bounce off" sprayed surfaces. The air is constantly clouded with paint mist—valuable material lost. But with steam spraying, superheated steam dissipates on leaving the gun, appreciably reducing "bounce-off" and overspray loss.

In addition, you can increase operator productivity with steam spraying's thicker coats, speeding your operation and cutting labor costs. Coats are equal to, or better in quality than, conventional finishes, and are surprisingly free from sags, popping and runs.

The heart of the process is the Kellogg-American Steam-Spray gun. Cool to the touch (exclusive insulation, heat radiating design and built-in finger guard assure this) and finely balanced (hose support reduces downward torque on the head), this gun makes the process practical for production-line use.

We can supply you with all the equipment necessary for steam-spraying. We will be glad to demonstrate the process in your own plant, or arrange visits to convenient installations. Mail the coupon today.

DOMINION BRAKE SHOE COMPANY, CANADIAN PLANT, NIAGARA FALLS, ONT.

American Brake Shoe Company, Kellogg Division
94 Humboldt Street, Rochester 9, N. Y.

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Please send me information on steam spraying.

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Manufacturers' specifications and color charts are matched perfectly. Improved methods in formulation allow increased production and more economical coverage.

Find out more about this new departure in finishes for metal furniture—a post card or letter will bring you more complete information.

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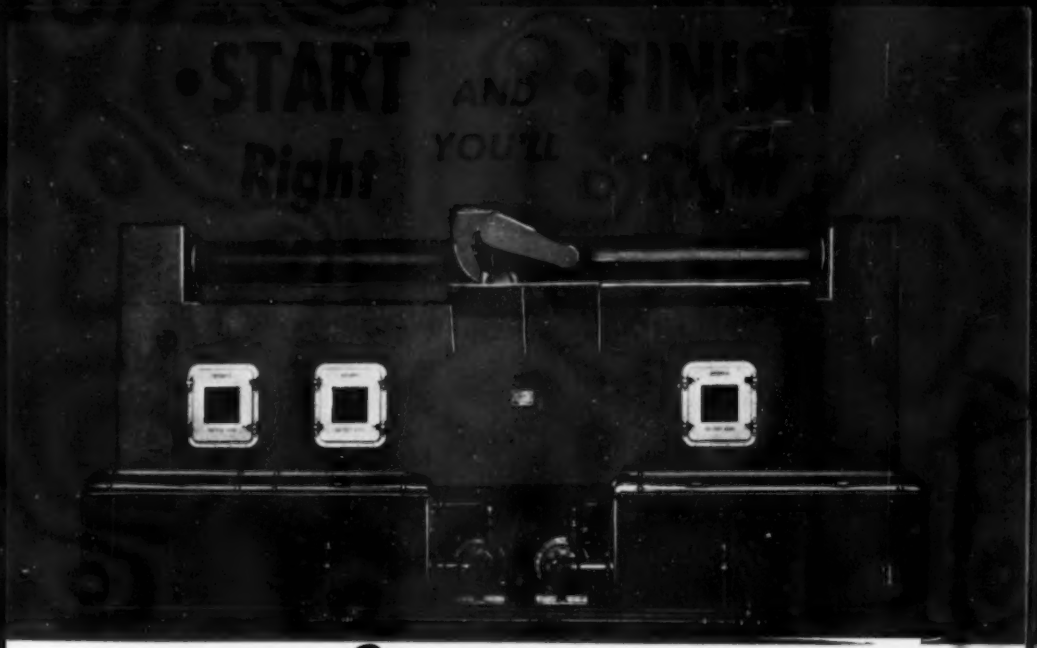

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You start right when you call upon Schmieg engineers for mechanical washers to fit your specific production requirements. And that's why you finish right, too. Because Schmieg washers are designed and engineered to give you high production cleaning, long trouble-free performance at low operating cost.

There's a Schmieg washer for any kind of job, a washer that will save floor space and can probably be loaded and unloaded by one man. Available in manual and automatically loaded types.

Convenience is emphasized in Schmieg washers, no matter what type—convenient controls, variable speed drives, doors that permit quick access to interiors for ease of maintenance.

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Quality DeVilbiss equipment will make a valuable member of your finishing department team. In nearly every industry, DeVilbiss equipment is helping to produce better, more lasting finishes. Give your products the professional, sales-producing finish they deserve . . . with DeVilbiss products — Spray Equipment, Air Compressors, Exhaust Systems and Hose.

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Hose and Connections

Spray Guns

COULD YOU PROFIT WITH A DEVILBISS AUTOMATIC?

It's well worth investigating. Special DeVilbiss automatic machines for mass production finishing have proved profitable for many businesses.

For example, a DeVilbiss chain-on-edge, automatic spray finishing machine and bake oven handle this appliance manufacturer's finishing operations with ease.

Automatic Spray Guns cover every surface of each vacuum cleaner part with a smooth, even, two-coat hammered metal finish. The finish is baked on as it leaves the booth.

All guns are controlled by an automatic tripping device and operate only when there is work at the spray station. Parts are finished faster, better, at an absolute minimum cost per unit.

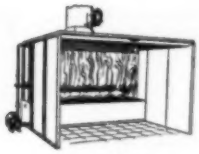
Improved finishing technique like this is typical of DeVilbiss service and products – Spray Equipment, Air Compressors, Exhaust Systems, Hose and Connections.

If you're troubled by finishing department bottlenecks, or if you would like expert advice on your finishing problems, phone our nearest branch office or write us. We welcome the opportunity to serve you.

THE DEVILBISS COMPANY, Toledo, Ohio

Windsor, Ontario • London, England • Santa Clara, Calif.

Branch Offices in Principal Cities



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FOR BETTER SERVICE, BUY

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TOUGH AND MARPROOF—Kemclad formulations include special ingredients to protect finish against marring, chipping or scratching.
HOT GREASE? NO HARM DONE! — Even hot grease won't damage Kemclad's gleaming white finish!
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CLEANS EASILY...SAFELY! —Kemclad's smooth surface cleans easily with damp cloth, but withstands strong detergents safely.

Photo courtesy Gibson Refrigerator Co., Greenville, Michigan

Well engineered...

TO THE LAST 2/1000 OF AN INCH!

The engineering in the last 2/1000 inch of an appliance—its *finish*—may be even more important than for many of its other parts! Leading manufacturers like Gibson Refrigerator Company prefer S-W Kemclad Appliance Finishes because they provide advantages three ways:

- ***Saleswise,*** **they give the white-for-the toughness and beauty that only the newest developments in synthetic resin materials and know-how make possible.**
- ***Productionwise,*** **they reduce rejects and production line problems.**
- ***Costwise,*** **their high solids content with low viscosity makes finishing cost low for any given thickness of finish.**

Investigate what S-W Finishes may mean in your own production set-up! Call, wire or write The Sherwin-Williams Co., Industrial Div., Cleveland 1, Ohio.

SHERWIN - WILLIAMS
APPLIANCE FINISHES

KEMCLAD
KEMVAR
HEETCLAD
SUPERCLAD
TV LACQUER
DIMENSO

G. L. Hehl, General Manager
General Industrial Division.

"If the label says KEMVAR it will be KEMVAR!"

A statement of policy to users of Sherwin-Williams Industrial Finishes . . .

..for CIVILIAN production:

"To aid manufacturers in maintaining their finishing standards, Sherwin-Williams makes this statement of policy: "Restrictions in the supply of some of the quality ingredients of such well-known Sherwin-Williams industrial finishes as Kemvar, Kemclad and others may affect the *quantity* of such finishes that can be supplied.

"So long as these branded finishes can be supplied at all, however, no deviation in their *quality* will be permitted. "Users of such finishes can therefore be assured that if a label *says* KEMVAR, the material so labeled will *be* KEMVAR, as nearly unvarying in established performance characteristics, both on the production line and afterwards, as strict quality control can make it."

.. for DEFENSE production:

"The same integrity of product and appreciation of practical production problems is assured to users of Sherwin-Williams finishes for defense orders as for civilian requirements.

"Every effort will be made to furnish defense manufacturers with suggestions for making necessary change-overs to meet government finishing specifications accurately in spirit as well as letter, with least possible modifications of existing equipment."

Sherwin-Williams experience extending through two World Wars will be made available on any defense production problems, through facilities extending from coast to coast. Call, wire or write The Sherwin-Williams Co., 101 Prospect Ave., Cleveland 1, Ohio.

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FINISHES and LACQUERS

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COAST LACQUERS cost less because we pass along to you the savings made possible by our immediate contact with the huge chemical plants of the Gulf Coast from which we obtain our superior raw materials at low cost. Write for information and prices on . . .

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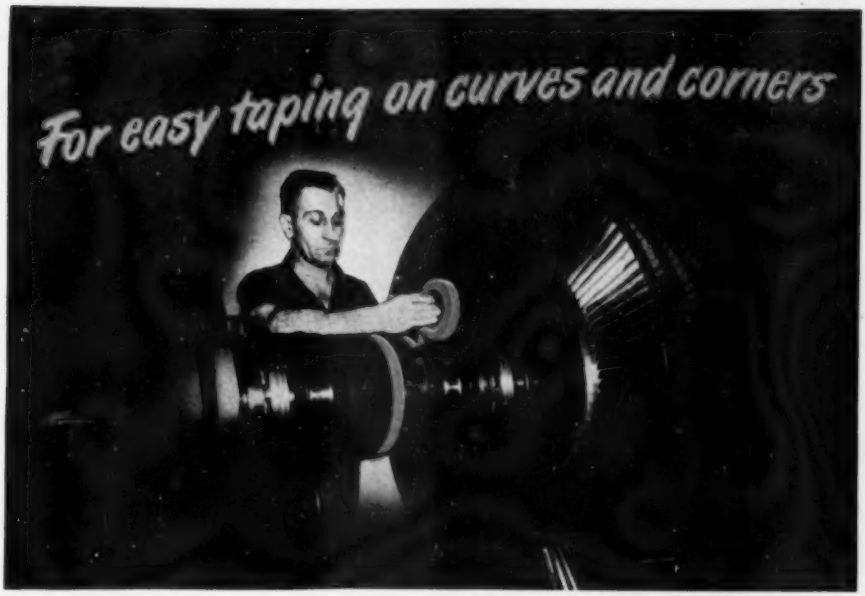
GOVERNMENT SPECIFICATION COATINGS AND THINNERS

CPL

COAST Paint & Lacquer Co. Inc.

P. O. BOX 1113, HOUSTON 1, TEXAS



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It's a cinch to do a fast, neat taping job on curves, corners and irregular surfaces with strong, flexible BEHR-CAT Brand Tape. It has the necessary stretch so that it lies flat, without wrinkling when pulled around shaped surfaces. Moreover it has the strength to resist tearing and ripping at the edges on these tough applications. And BEHR-CAT Tape sticks tight under this stress. No creeping back or pulling away from the job. It's a truly balanced tape from every standpoint. Try BEHR-CAT Tape on your next protecting, masking or sealing job and see the difference. Your distributor can supply you, or write direct.

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FASTER, BETTER, LOWER-COST

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This installation at Peerless Mfg. Co., Louisville, is a 54'4" Fostoria infra-red oven for baking brown hammer enamel on stove parts. Baking time is 4½ minutes at approximately 350°F. Before installing this Fostoria oven, the parts were baked in a batch type gas oven for 30 minutes. Fostoria time saving 85%.

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Your Dependable Guarantee of Sound Engineering

- **INSTANTANEOUS HEAT** — No stand-by time.
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- **LISTED BY UNDERWRITERS' LABORATORIES, INC.**

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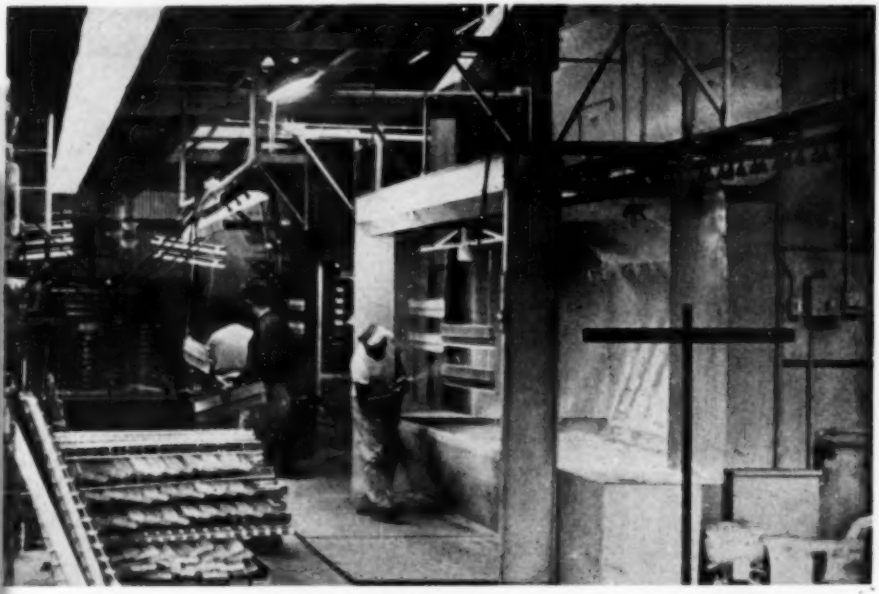
PRESSED STEEL CORPORATION, Fostoria, Ohio

Oldest and Largest Manufacturers of Industrial Infra-red Ovens

FINISHING INDUSTRIAL



General view of paint shop showing 14-ft. water-wash spray booth in which all of the larger components are painted. Notice overhead conveyor chain which passes through the booth.

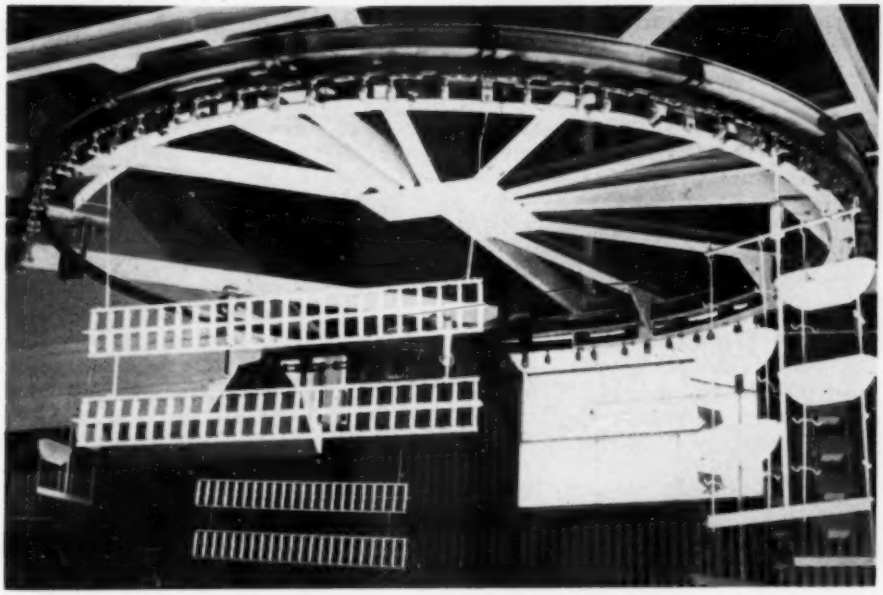
A conveyorized setup that includes metal parts washing, a phosphate treatment, chromic acid rinse, force drying, spray painting and oven baking, with a minimum of costly handling.

Also included are facilities for the preparation, testing and controlling of all paints and surface treating solutions.

INDUSTRY MUST have light. Even more light is required when defense production keeps the wheels spinning on a 'round-the-clock schedule.

This fact alone is responsible for a large proportion of the business now enjoyed by Smoot-Holman Co., Inglewood, California, one of the largest producers of industrial lighting equipment west of the Mississippi River. The company's production lines are humming to keep pace with a demand inspired by an

LIGHTING FIXTURES . .



As parts in process leave the oven they travel around this circular section of conveyor where it is convenient for workmen to remove them and store them to await final assembly.

expanding west coast industry shouldered with an immense backlog of defense contracts.

Other factors contributing to its success are well-engineered, high-quality products produced in shops that are tooled with the latest and most efficient production equipment. These products include procelain enameled plumbing fixtures, porcelain enameled incandescent lighting fixtures, and industrial fluorescent lighting fixtures finished with synthetic baked enamel.

BY GILBERT C. CLOSE

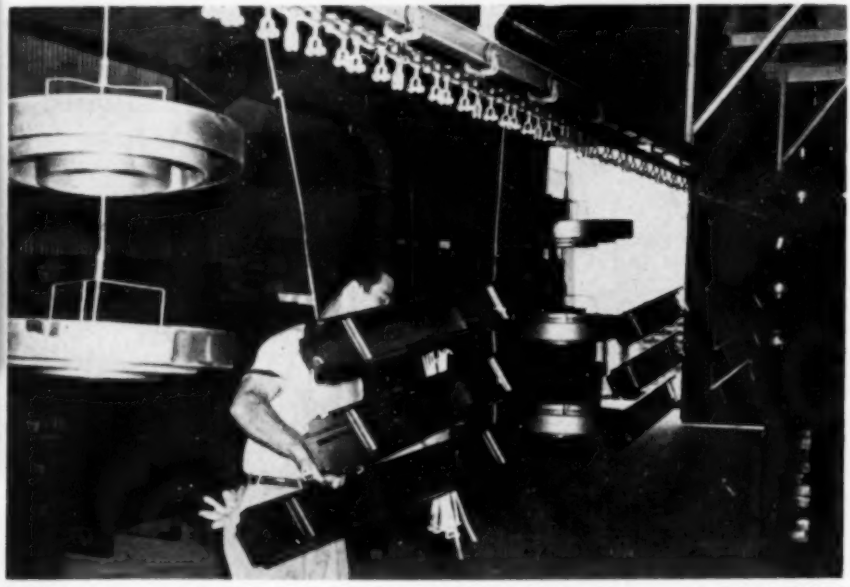
Except for the basic electrical components of the lighting fixtures (sockets, switches, etc.) the products are fabricated and finished entirely within the company's own shops. Mild sheet steel is the principal material employed. Machines are available to roll, spin, draw, cut and form this metal into any shape desired. [*To page 30*]

Quality has been a byword in the Smoot-Holman shops since their early (for the west coast) beginning back in 1922. No concessions are made to competition offered by cheaper products of less efficient design and construction. A small but efficient engineering department is constantly at work, studying the problems of industrial lighting and designing products to meet these problems as they occur.

Conveyorized Paint Shop Has Latest Facilities

The paint shop recently added to the production line for the sole purpose of applying synthetic finishes on fluorescent industrial lighting fixtures is a good illustration of the company's progressive attitude. This shop, equipped with the latest in high-speed automatic finishing equipment, is in addition to the extensive facilities used in porcelain enamel application.

The new paint shop, 50x141-ft. in size, is so completely automatic in operation and so conveniently arranged that 11 employees can handle a volume of work which, under old paint shop conditions, would require at least twice that number. The only extensive handwork involved is loading and unloading the conveyor and spray painting the various fixture components when they reach the appropriate booth. Material handling, both in and out of the paint shop and during processing, has been greatly reduced. [*To page 32*]



Loading fluorescent lighting fixtures on the 500-ft. overhead conveyor system. Unfinished lighting fixture components enter this area directly from the machine shop, and they are selected for finishing in accordance with the demands of the final assembly department.

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Save Time and Equipment with the Brand New KLEM-KOTE 3-STEP Cleaning and Conditioning Process

Klem-Kote is the newest development in the field of metal preparation and rust-proofing. Used in a three-stage washer system it will give paint adhesion and salt spray resistance equal to or better than complex five and six stage rust-proofing systems.

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Between Machine Shop and Final Assembly Line

To begin with, the paint shop is located directly between the machine shop production departments and the final assembly line. This rules out long distance material handling. When lighting fixture components are fabricated and ready for finishing, they are moved from the machine shop into the near end of the paint shop where they are stored in itemized piles or bins convenient to the overhead conveyor system.

Fixtures entering the 100-ft. chamber of the automatic washing machine. Note rotary brush revolving against conveyor chain to loosen dirt or paint particles which then are washed off as chain moves through washer.

After processing and painting, the parts are removed from the conveyor at the opposite end of the shop where they are directly adjacent to the final assembly department. Segregation of incoming components into piles and bins makes it simple to coordinate finishing with final assembly requirements. The man who loads the overhead conveyor has only to select components for which there is a pressing need.

The conveyor system is a 500-ft. continuous overhead chain-type, dipping conveniently through the various work areas where it is necessary to handle the parts, then rising again to provide ample head clearance throughout the rest of the shop. Simplified and detachable conveyor hangers have been tooled for various parts that must be finished. The hangers provide easy attachment and ample support for the work, but minimize the area of contact with each part to permit complete overall cleaning and pre-treatment.

Automatic Parts Washing, Phosphatizing and Drying

Much of the new paint shop's efficiency is due to the automatic washing machine installed along one side of the shop where it is out of the way and does not interfere with clear floor space. This machine is about 100-ft. in length and utilizes the jet-spray principle of solution application. Four spe-

(Continued on page 34)

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SPECIFICATION
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It's always good sense to consult a specialist when you have a particularly difficult problem.

For this reason, many firms engaged in defense production, as well as those making civilian goods, have found that when LCA finishing experts take over, they have the assurance that the final result meets with satisfaction.

Therefore, before you bid on defense contracts . . . let LCA estimate on the needed SPECIFICATION FINISHES.

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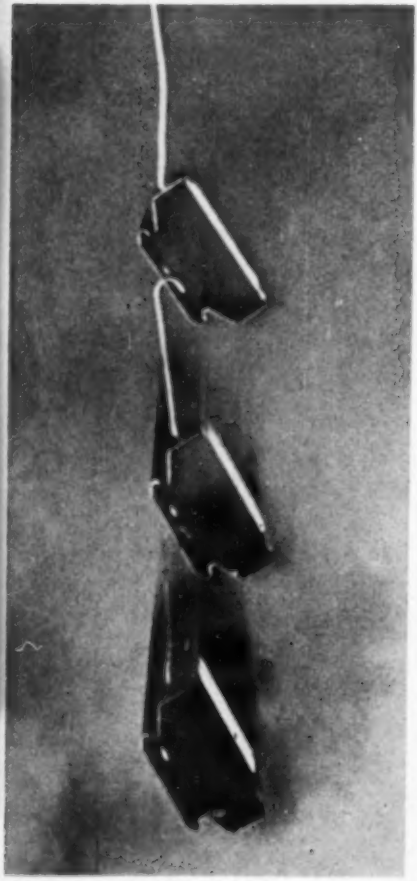
cific treatment zones are included, each with an 8-ft. approach to minimize mixing of solutions.

The conveyorized work first enters a 33-ft. zone where a combination cleaner and phosphatizing solution is applied by high-pressure spray jet nozzles. The solution used is referred to in shop talk as "P-40." Solution temperature is maintained between 150° and 160° F. Travel time is 1½ minutes in this zone.



Notice the density of vapor-spray in pre-treatment phosphatizing zone of automatic washer. Opposite ends of the lighting fixture troughs are completely concealed from the camera's penetrating flash.

The second 12-ft. zone of the automatic washer contains the hot clear water rinse. A third zone of the same length is used for spray-jet application of a hot chromic acid rinse. A "P-1" solution is used. Travel time in these 12-ft. zones, plus approach time, is about 20 seconds each.

The final 10-ft. zone of the washer is used as a drying chamber and operates at about 500° F.; this is assurance that the work will emerge dry and ready for painting.

What Phosphate Treatment and Chromic Acid Rinse Does

The combination phosphate surface treatment and chromic acid rinse is gaining in popularity in many types of industry. To begin with, the chemicals employed are not on the critical list and are not too expensive. The crystal phosphate coating produced on the metal in the pre-treatment zone is alone highly corrosion resistant. The subsequent hot chromic acid rinse serves to "seal" this phosphate coating by passivating the microscopic areas of metal not covered by the phosphate crystals.

The coating thus produced is not only highly corrosive resistant in itself, but when damaged during its subsequent service life to the extent that bare metal is exposed, its passivating action prevents the spread of corrosion from the bare metal to ajoining areas under the overlaying paint film. The phospha-

In one hand ordinary resin . . . shattered by a single hammer blow. In the other hand EPON resin . . . intact after repeated hammer blows. Quite a difference! *It means that varnishes and enamels made with Epon resins RESIST abrasion, scratching and chipping.*

The secret of this ability lies in the structure of the Epon resin molecule . . . an entirely new class of condensation polymer. Its reactive groups are evenly spaced along the chain so that the curing agents which cross-link the resin and make it thermosetting are also uniformly separated . . . this accounts for the flexibility of the cured resin.

Moreover, the polar nature of the Epon molecule contributes outstanding adhesion . . . so tenacious that an unprimed zinc die casting can be finished with a single coat of an Epon resin enamel.

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Although the demand for Epon resins is ahead of present production, increased capacity is on the way. *Now* is the time to develop your formulations based on these new resins. Experimental quantities may be obtained for evaluation.

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tized surface also offers excellent bonding characteristics for subsequent paint films.

At Smoot-Holman, this phosphatized surface is considered sufficiently corrosion resistant to eliminate the need of a prime coating. Extensive humidity and salt spray tests, carried out under controlled laboratory conditions, substantiate this contention. Thus, when the lighting fixture components emerge from the automatic washer, they are ready for the paint booths. Up to this point only one paint shop employee, the man loading the conveyor, has had to handle the work.

Distribution of Parts and Delivery to Spray Booths

When the work emerges from the washer, smaller parts racked on hangers are removed from the conveyor for transportation to the paint booth where they will be finished. Larger parts remain on the conveyor and are carried directly through the large booth where they are painted. These large parts are not handled from the time they are placed on the conveyor until they are cleaned, pre-treated, finished and baked and arrive at the storage area adjacent to the final assembly department.

One 14-ft. and two 5-ft. water wash paint booths are in use at this time. The smaller booths are used for painting and detail parts that are removed from the conveyor as it emerges from the automatic washer. The larger booth, through which the conveyor runs, is used for painting the larger components. These components are merely transferred to a booth hanger until finished, then back to the conveyor with a minimum of effort.

Removing racked smaller parts from conveyor as they emerge from the automatic washing machine. Larger parts are left on conveyor and subsequently travel through paint booth. Note the design of rack to minimize contact with parts, to facilitate thorough cleaning.

Paint Pumped from Drums In Fireproof Vault

Paints used in large quantities are delivered to the spray booths by pumps mounted on paint drums in a fireproof vault at one end of the shop. Small pressure pots are available at each booth for applying lesser used coating materials when they are needed. The overhead conveyor passes both small booths so that finished work can be transferred with little effort. When all parts are finished, they are back on the same conveyor on which they started their trip through the paint shop. [*To p. 38*]

No "weak sisters" here...

ALOXITE TP

In the manufacture of ALOXITE TP aluminum oxide grain by CARBORUNDUM, flats and splinters have been eliminated to produce a sturdy, uniformly graded abrasive—ideal for operations requiring heavy stock removal.

Tough, blocky ALOXITE TP grain is recommended for polishing all types of steel and other metals of high tensile strength. Available in all standard grit sizes, from 16 to 220.

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● *The brand name* CARBORUNDUM *identifies a complete line of coated, bonded and grain abrasives for metal finishing operations.*

POLISHING GRAIN by

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83-11

Air-driven material pumping and agitating units are attached to steel covers which fit over drums of paint. From this fireproof room paint, mixed to correct viscosity, is pumped through piping to the spray booths.

At this point the conveyor rises and carries the finished work through a 110-ft. overhead baking oven operated at 350° F. Baking time is approximately ten minutes. The ceiling location of this oven not only adds to available clear floor space in the shop, but heat losses from the oven are dissipated upward and do not affect shop working temperatures. When the conveyor and work emerge from the oven, it drops to a convenient unloading level, then travels around a large circular beam so that parts may be unloaded at their specified storage station close to the final assembly department.

It will be noted from what has just been stated that the work receives a minimum of handling from the time it is placed on the conveyor until it is ready for final assembly. In-process storage of parts is reduced to a negligible minimum. In this respect, layout of the shop adheres to the point so often emphasized by industrial engineers, namely, that *real efficient materials handling is a large factor in speeding up production and in reducing costs.*

Preparation, Testing; Control of Paints and S. T. Solutions

The fireproof vault previously mentioned serves also as a paint laboratory. Close control of the automatic washer solutions is maintained by daily titration checks on solution strength. These are routine and do not require either extensive laboratory experience or elaborate equipment. A Zahn No. 3 cup is used to check the viscosity of paint being delivered to the paint booths by the pumps. All test data are recorded on charts where they are always visible to control personnel.

The quality control of finishes applied is a constant routine. The coating thickness is spot checked continuously to make sure that it is within specification limits. These limits are very critical on the lighting fixture reflecting surface. In general, coating thickness is maintained between one and 1½ mils.

Spot checks on the reflecting white surfaces of the lighting fixtures are made with a reflectometer. Total reflectance must be maintained between 85% and 90%. Other daily spot checks include scratch and adhesion tests. At periodic intervals, work specimens are sent to outside laboratories for comprehensive salt spray and humidity resistance tests. The tests, of course, are supplemented by cri-

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ALL PURPOSE
OVENS

Small Laboratory or Industrial Ovens built to finish-bake film surfaces such as enamels, lacquers, japans and other finishes, as well as pre-heating, aging, drying and curing. Adaptable to mass production methods — these ovens are rugged, well built for continuous, trouble-free operation. Chemical Laboratories find them ideal for testing and to determine time and temperature cycles. Vertical forced (high volume) air circulation reduces baking time and assures uniform temperatures throughout baking chamber.

Convenient sliding rack shelves are easy to load and operate. Positive volatile exhaust. Controlled air intake.

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tical visual inspection of every part before it enters final assembly.

While the new paint shop is but a small part of the Smoot-Holman Co.'s production facilities, the efficiency of the department as a unit is outstanding. It is real evidence of what can be accomplished in the way of merging product finishing with the remainder of the production line. Some companies spend huge sums of money to install smooth-running fabrication departments, but permit the metal cleaning and finishing departments to remain as a stumbling block in the pathway of speedy and efficient production. The Smoot-Holman set-up proves that finishing can be blended with fabrication as smoothly as an automatic screw machine can take its place on the machine shop production line. [END]

Massey to Represent Hercules In Cleveland Area

The assignment of Eugene S. Massey as technical sales representative in Cleveland for Hercules Powder Co.'s Synthetics Department is announced. He will assist W. W. Trowell, manager of Synthetics' Cleveland office.

Mr. Massey joined Hercules as a chemist in October 1950. Recently he has been preparing for his new duties by familiarizing himself with various technical problems concerning the application of synthetic resins in protective coatings, adhesives and other products.

Mr. Massey is a graduate of Ursinus College with a degree of Bachelor of Science in Chemistry.

Hot Spray Equipment to be Shown in Atlantic City

A "Hot Spray Solarium" will be a feature of the 1951 Paint Industries Show at Atlantic City, Oct. 31 to Nov. 3.

Eleven producers of raw materials and manufacturers of hot spray equipment have worked out a cooperative display wherein a wide variety of beautifully finished objects will "case history" the rapidly broadening markets for this type of finish.

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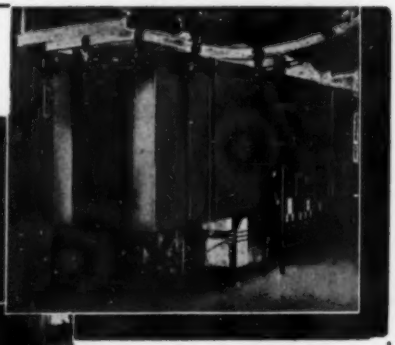

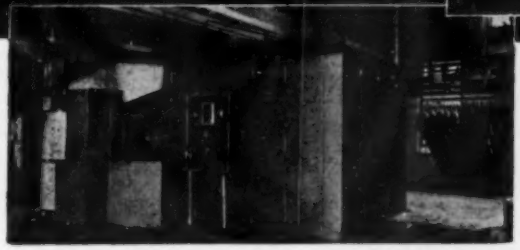

Lanly experience embraces the designing of many such ovens for a large variety of purposes.

A letter or phone call will make our counsel available without obligation. Write for literature.

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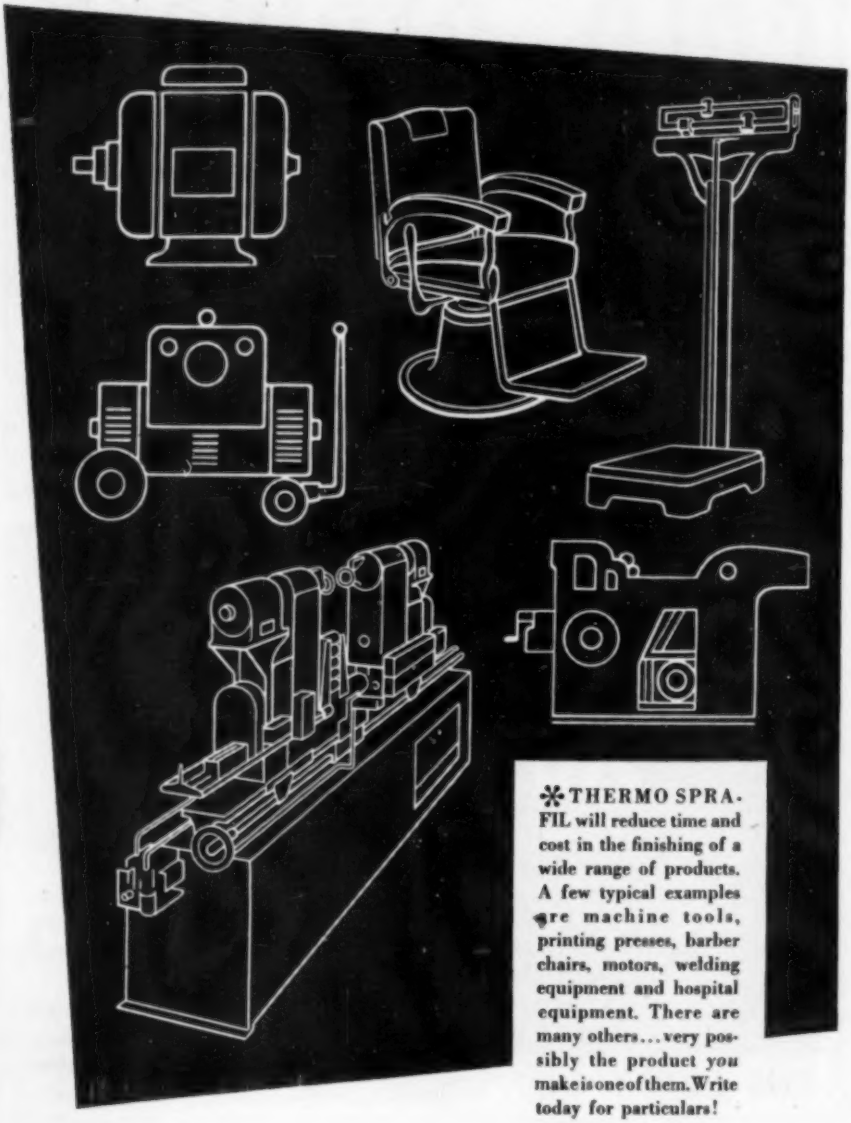
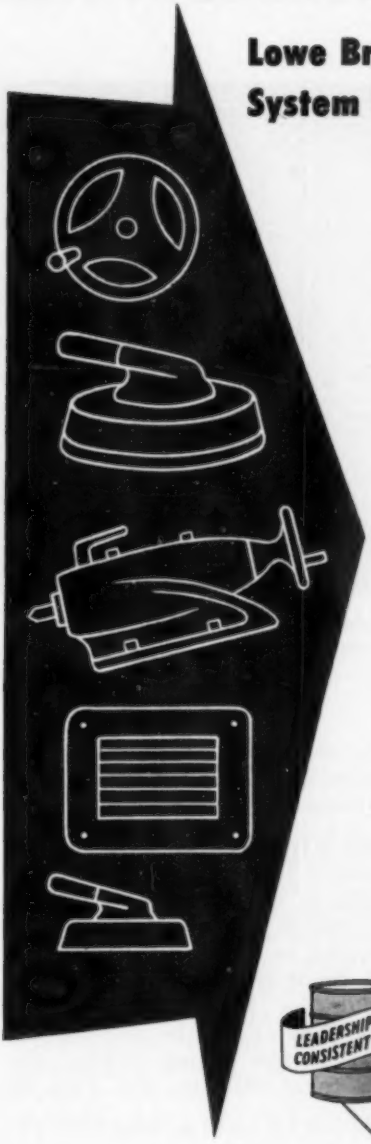


✻THERMO SPRAFIL will reduce time and cost in the finishing of a wide range of products. A few typical examples are machine tools, printing presses, barber chairs, motors, welding equipment and hospital equipment. There are many others... very possibly the product *you* make is one of them. Write today for particulars!

30% Off Finishing Time!

Lowe Brothers THERMO SPRAFIL System breaks finishing bottlenecks!



THERMO SPRAFIL is a new finishing system incorporating revolutionary new products . . . developed, tested and thoroughly proved by Lowe Brothers "Finishing Specialists." The THERMO SPRAFIL process *minimizes* costly sanding operations on castings and other surfaces* such as angle iron and rough cold roll steel . . . in many cases *eliminates need for sanding entirely!* In exhaustive field tests, THERMO SPRAFIL cut an average of *30%* off normal finishing time!

Here are a few of the THERMO SPRAFIL features that effect big savings and assure finer finishing results:

- Flows out smoothly!
- Fast drying—can be sanded or re-coated in a few hours!
- Dries smooth, free from "pin holing!"
- Eliminates sanding of wheels, levers and similar small castings—greatly reduces sanding time where sanding is essential—sands easily!

THERMO SPRAFIL is one more result of Lowe Brothers' ever continuing search for better finishing methods and materials. Get full information on the THERMO SPRAFIL system now. It may mean significant savings in money and time for *your* finishing operation.

THE LOWE BROTHERS COMPANY • INDUSTRIAL DIVISION • DAYTON 2, OHIO

LEADERSHIP THROUGH CONSISTENT SERVICE

Lowe Brothers FINISHES FOR INDUSTRY

New Techniques in the use

Lip-type capping mask and air fixture used for shielding the embossed chrome letters in name plate while background is sprayed. Notice reinforcing bridges which stabilize letters.

THE BASIC PRINCIPLE of precision metal masks has not changed materially within the past five years, but great strides forward have been made in the use of these masks. The advancement has been so marked in this direction that through the use of air-operated fixtures and automatic spray-mask machines, these masks have become a definite part of modern production finishing. On a wide variety of products — automobile emblems, childrens' toys, shell cases, etc.—they are used in connection with color spraying certain areas to produce decorative effects or identification markings.

Three Types of Masks for Quantity Production

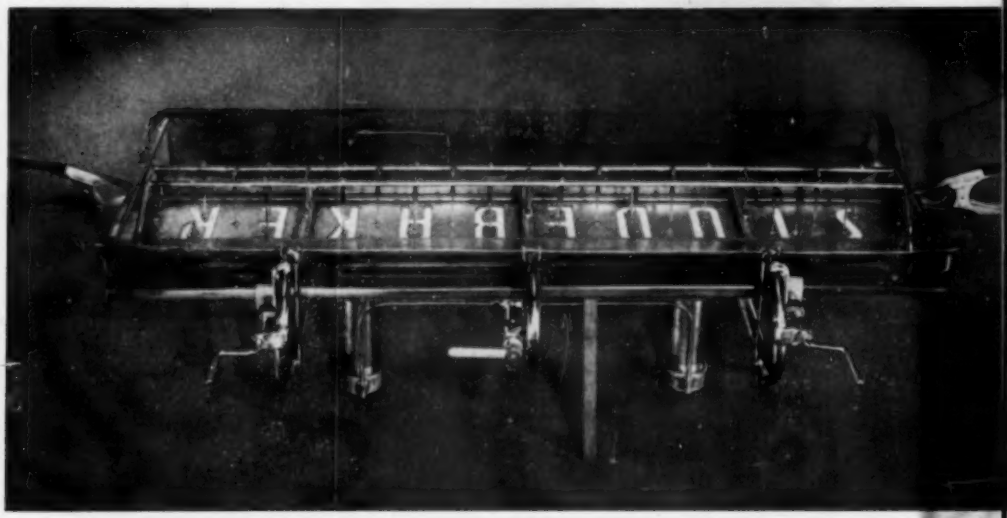
Because the three general types of form-fitting masks have been discussed in a previous article*, I shall define them only briefly here.

Lip Type Mask. Where a depressed design is to be painted, this mask, besides closely fitting the contours of the part, has a lip of

*Published in January 1947 issue of I.F.

By P. C. BARDIN

# of Form Fitting MASKS



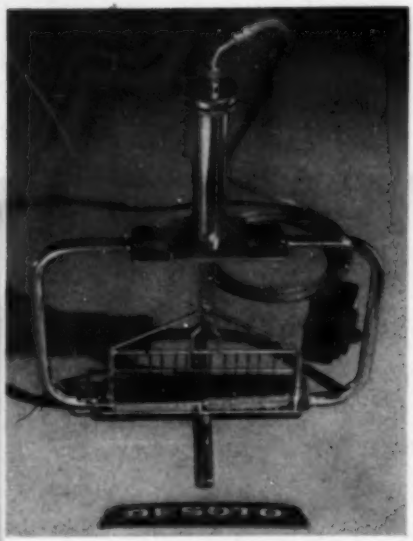
Large air-operated mask used in connection with spray painting the manufacturer's name on tailgate of a truck. Note how many places pressure is applied to make mask fit up close.

metal that extends down the side walls of the depressed area. The extent of spray painting can be controlled, within reasonable limits, by the length or depth of the lip. This same "lip principle" is employed where an embossed design is to be shielded. In this case the lip prevents sprayed paint from touching the top and all or as much of the sidewall as may be desired. In this type of mask, "islands" or unattached sections, such as those in the letter O and numerals 4, 6, 8 and 9, are held in place by elevated wire bridges. This bridging is employed to hold the capping of embossed sections to be kept clean.

Plug Type Mask. Where a low area is to be kept clean instead of being painted, plugs suspended from wire bridging can be made to completely fill the area to prevent paint leakage while the surrounding background area is being sprayed.

Block Cut-Out Surface Mask. Where calibration lines or lettering such as appear on many kinds of

Photos and data for this article supplied by Conforming Matrix Corporation.



An air fixture operates this plug-type of mask for protecting name in plastic plate. Notice square shank of piston extension to prevent mask from turning out of alignment.

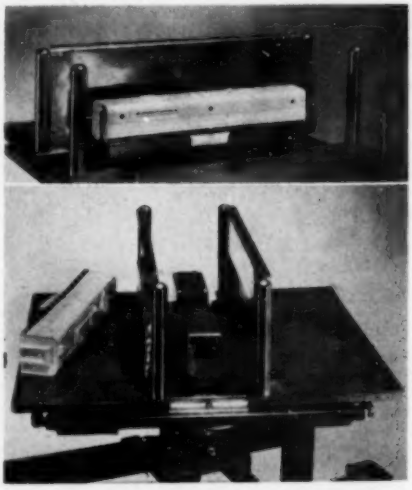
dials, too small for practical perfect masking, a cut-out area including a character or group of characters is more feasible from a rapid production standpoint. By confining the paint to a relatively small area, economies are achieved because of the smaller area to wipe or buff.

Air-Operated Fixtures Advance Use of Masks

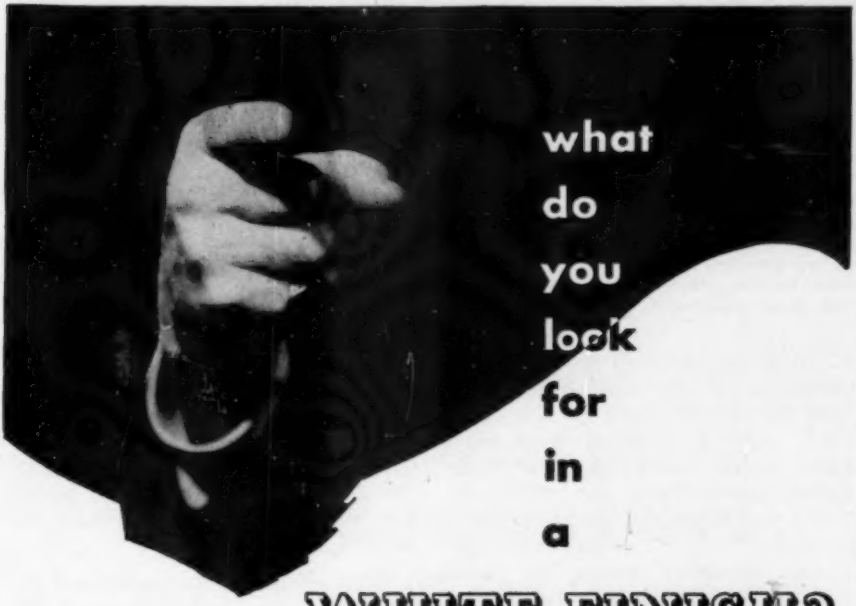
When masks, of the types just mentioned, were first used, they were either laid on the area to be masked and held by hand or pressed tightly into position with springs, cams or toggle locking devices. To these devices the magnetic mask has been added. Now, air-operated fixtures, controlled by a foot lever, are used extensively so the operator has both hands free for productive movements, thereby increasing the speed of handling. Another advantage is, that desired pressure can always be maintained uniformily.

Air-operated fixtures are especially useful in masking some plastic products which are sometimes dimensionally unstable. In this case the thrust of the piston compensates in a measure for slight variation in wall thickness or slight warp. Also, in masking certain areas of products that have no depressed or embossed line of demarkation, air-operated fixtures are a necessity.

For continuous volume production in masked spraying, two types of automatic spray-mask machines are available. The rotary table type



Two views of an air-operated closing mask fixture and form on a turntable. This setup is for decorating toy railroad coaches. Two masks are used, one on each side. The table is revolved by hand.



WHITE FINISH?

United's White Bake Enamel combines, in one finish, all the essential requirements you may need. It offers high light reflectivity, chip resistance, durable color retention, and resistance to food acids, detergents and other household chemicals—plus maximum hide-ability. If your product could use these finishing qualities you ought to investigate United's White Bake Enamel.

Another white worth investigating is United's White Undercoat. With perfect adhesion to most metals, and outstanding filling qualities it's ideal for use on castings. It air-dries or bakes.

You can get samples of both of these quality whites by writing. Why not ask for them today?

Complete Research Facilities AT YOUR SERVICE

If you are faced with a special finishing problem, the United laboratory will gladly assist in finding a solution. These research facilities are always at your service to help make a better product.

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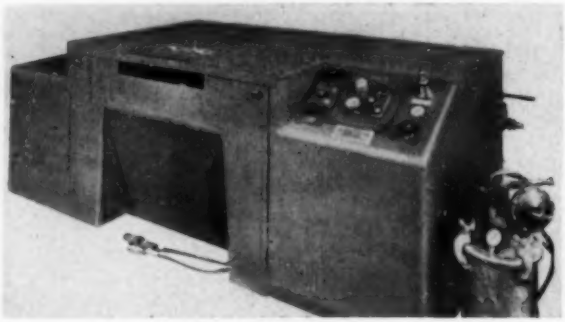


The performance of this automatic spray-mask machine is adjustable through the control panel at the right. Operator holds inverted article to be sprayed over set-in masks on table top (above the floor pedal) while color is sprayed from fixed spray gun below. Foot treadle starts and stops machine.

of machine employs mechanically operated air pressure fixtures to hold the object firmly in the mask while color is sprayed from fixed guns under the table. The table indexes eight times per revolution, and it is at rest during the time of spraying. During these rest periods, operators move the parts which are painted in halves, from one color mask to the next color mask. The rated production capacity of this machine, for 3-color masked spraying, is 1200 finished pieces per hour. For single color masked spraying, the capacity of the machine is three times greater.

In another type of automatic spray-mask machine, an operator holds the parts firmly in the masks set in the top of the machine, while fixed or reciprocating spray guns apply color from beneath the table. Through the use of different electro-formed metal masks, which are readily interchangeable in the machine, and resetting of the gun angles, a wide variety of parts can be spray finished. This machine has a capacity of ranging from 700 to 3600 pieces per hour, depending upon the parts to be spray painted and the speed of the operator. The machine is so designed that a belt conveyor may operate over the rear flat top area to bring parts to and take them away from the operator. Through the use of a conveyor belt, the operator may use both hands for loading, thereby doubling his possible productivity.

Both machines are operated entirely by compressed air and are fully adjustable for speed, spraying cycle, amount of material sprayed and—in the reciprocating gun model—the stroke of the gun carriage.

Cleaning the Masks by Hand and by Machine

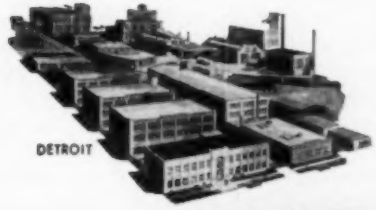
When setting up to spray paint through form-fitting masks, care should be used in selecting the proper spray gun for the work. The wrong gun or the wrong spray pattern will not only waste paint in overspray and increase rejects, but it will cause unnecessary mask cleaning. Of course, all masks require cleaning at intervals. How often this has to be done depends upon the size of the aperture, type and viscosity of the material and knowledge and skill of the operator.

(Continued on page 50)

U. S. GOVERNMENT SPECIFICATION FINISHES

Lusterless, semi-gloss & gloss lacquers, enamels, undercoats & thinners to meet virtually all U.S. Gov't. Specifications

WRITE for Booklet listing over 150 Government Specification Finishes for U. S. Army, Navy, Chemical Corps, Air Force, Ordnance, Joint Army-Navy and Federal.



Illustrated *(left)* are Rinshed-Mason's 37 building units at Detroit and Anaheim, California, consisting of office, factory and laboratory facilities. Not shown are field exposure test facilities in Florida.

Established in 1919, Rinshed-Mason is one of America's leading manufacturers of fine quality lacquers, enamels and undercoats for automobiles, farm equipment, appliances, and numerous other peacetime industrial products. Beyond this, versatile laboratory and production facilities are available to meet defense requirements for protective and other coatings.

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Formerly, masks were cleaned manually in a tank or bucket of solvent, using a hand brush followed by a quick wiping with a rag or a blow-off with compressed air. If the volume of production and the number of masks were sufficient, the services of one or more full time men were required to keep masks clean and ready for use.

Machine for washing masks. Spring baffles just below top edge of the tank fold down against insides of the tank to permit the insertion and removal of masks. Note the clean-out plug in Y-shaped type of strainer in the foreground.

This tedious hand cleaning of masks has been eliminated by using a special mask washing machine. The machine I have in mind will clean several small masks at one time, or a single mask up to 18x-20x5-in. An explosion proof motor drives a high pressure pump that forces acetone from perforations or nozzles in copper pipes which extend up the inside of the tank, at front and back.

Washing masks by force jets of acetone can be accomplished in from one half to two minutes, depending upon the type of coating material used and the length of time it has been on the mask. The

acetone passes through a strainer before it enters the pump. Clean-out plugs are provided in both strainer and in the rear of tank for removal of sludge. The lid of the tank and the spring baffles just below the top edge of the tank prevent excessive evaporation of the acetone, especially during the washing operation. Because acetone is highly volatile, masks dry almost immediately after they are removed from the machine, and they require no wiping or blowing off.

This self-contained mask washing unit may be mounted on a castered dolly for use at one or more automatic spray-mask machines, or in a booth where paint is hand sprayed through form-fitting masks.

Masked assembly on shell cases. In lower center you see a spring-type mask which clamps inside the case, as shown near top. At lower left are the two halves of a new magnetic type of mask which fits around the outside of a shell.

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6. **Thins 3:1 with xylol.**
7. **Available in GREY, SALMON and OFF-WHITE.**
8. **Ground well to smooth texture.**

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Racks for Standard and Custom Jobs

I VISITED A custom finishing shop, one that is modern and conveyorized and which has water curtain spray booths, portable dip tanks and a flow coater. They have some long term contracts for finishing certain items which they now handle as standard products. They also have a multitude of ever changing items, some of which are finished by spraying, others by dipping and many by flow-coating.

"What is your biggest problem?", I asked the superintendent.

"We have solved one of our biggest probems", he replied. "Conveyor racks for holding parts on our long run finishing products have become more or less standard equipment, just like spray guns or dip tanks. But racks for holding the short runs or one-time finishing items—these have presented a real problem to all of us.

"As your know, each job usually requires special racks, especially if the products are to be dipped or flow-coated. Formerly, when such jobs were completed, we would not scrap the racks, believing that they could be used for other similar jobs. As a result too many racks accumulated. Our storage places became filled to overflowing. The place began to be cluttered up. Even floor space under the ovens was used for stacking racks. Occasionally they would slide or fall out into the aisles. Something had to be done.

"We checked over all of the racks and decided to keep only those on which certain repeat orders were assured, and scrapped all others. Now, when a new job is figured, racks are included and the customer is so advised. If a second run of the same item is ordered within 30 days, the

cost of racks is omitted. Special racks are held for 30 days, then scrapped if no further use is found for them. That's how we solve that problem." —*P. C. Bardin.*

Have a Lamp Crew

HAVE YOU EVER started that fluorescent lamp crew? Two men and an elevated platform mounted on double ball-bearing casters are all that is needed. One man remains on the floor to move the platform around, and one man stands on the platform, removing lamp tubes, wiping them with a damp cloth and replacing them. Every other time the tubes are cleaned, the reflectors are wiped clean. A well advertised no-rinse cleaning powder aids materially in the cleaning, and helps to speed up the job.

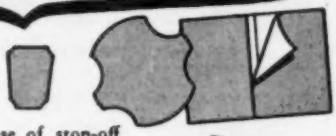
Clean lamps and fixtures produce more light at no greater cost for electricity. More light is a definite aid in producing more and better work. It also produces a more favorable influence on workmen too.—*S. E.*

New Degreaser Bulletin

A new illustrated bulletin describing the company's line of degreasing equipment has just been published by Phillips Mfg. Co., 3475 W. Touhy Ave., Chicago 45, Illinois. The bulletin gives a detailed picture of how Phillips degreasers operate, what types of manufacturing industries use degreasers, and to what specific applications vapor degreasers can be put. The full line of vapor degreasers is shown in the bulletin along with the features, capacities and uses of each specific unit.

There are photographs showing industrial applications of degreasers for both tank-type and conveyorized units.

NEW
MASKING METHOD
for SPRAY-PAINTING • PLATING
• SAND BLASTING
PRE-CUT SELF-STICKING QUIK-MASKS



Hundreds of plants now using Brady QUIK-MASKS are saving time and money by completely eliminating costly hand work, use of stop-off materials and metal shields. QUIK-MASKS are pre-cut to the exact size and shape you need. Protect name plates, machined parts, plated and polished sections, holes, threads, etc., from paint, plating and cleaning solutions, oils, acids and sand blasting.

QUIK-MASKS are pre-cut from special "SCOTCH" brand plating and masking tapes. They stick without moistening—are quickly applied and removed. Circles, squares, rectangles, hexagons, letters and numerals stocked in many sizes. Nameplates and other specials made to your exact requirements.

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NEW! NEW! NEW!

The Science of
Wrinkle Finishing

A SINGLE COAT FINISH

A Sure Guide To More Efficient and Cost Reducing Industrial Finishing

The first fully authoritative book covers modern Wrinkle finishes from all angles . . . It tells in layman's language, but technically correct, what the formulator must do to produce a soft, suede-like finish, or a high metallic gloss.

The "Science of Wrinkle Finishing" is well illustrated, in color and black and white. Both actual size and magnified photographs are included to show the many variations of textures possible to attain with these one-coat finishes. Preparation of the surface (little or none is needed with "Wrinkle" finish, making it the most economical industrial finish), spraying, drying and baking are all described in full. The application to flexible materials such as paper, fabrics and wood are also dealt with and described clearly.

Technical data on polymerization and on drying oils, not heretofore available, are given special attention.

A BOOK WHICH INDUSTRIAL FINISHERS HAVE BEEN WAITING FOR

SOME OF THE SUBJECTS COVERED:

ORIGIN OF WRINKLE FINISH

How it was started
How to control characteristics
What is "crystal" finish
What is crystallizing lacquer

SPECIAL PATTERN FORMULATIONS

How to make patterns
How to blend for formulations
Where are various finishes used
What oils are used for different formulations

APPLICATION

How to apply "Wrinkle"
What temperature to use
What equipment necessary
How long to bake
What are the controlling factors
What is the most effective means of application
What is the viscosity of oils for applications
How to attain the finish desired

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2. "Wrinkle" Pattern, Texture and Gloss
3. Color in "Wrinkle" Finishes
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16. Asphaltum and Blown "Wrinkle" Formulations
17. Special Pattern Formulations
18. Air Dry & Flexible Formulations
19. Pigmentation

APPENDIX A:
Outline for Polymerization in drying oils
APPENDIX B:
Summary of "Wrinkle" patents
GLOSSARY OF TERMS

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INDUSTRIAL FINISHING Magazine

1142 North Meridian Street **Indianapolis 4, Ind.**

Stripping off for Repainting Metal

EFFICIENCY in any kind of cleaning or paint stripping operation is a result of the correct combination of a suitable detergent or stripping material, adequate control measures to help govern temperature, cleaning time, solution strength, etc., and last—but by no means least—the proper equipment.

Cleaning and paint stripping equipment varies considerably and may include such items as soak-immersion tanks, automatic or semi-automatic washing machines, spraying units, steam guns and other apparatus.

Choice of Equipment for Cleaning and Stripping

Choice of the particular piece of equipment needed will depend on the specific work to be done, the type of dirt or coatings to be removed, the nature and size of parts or surfaces to be cleaned or stripped, and the personnel available to actually handle the operation. Whatever the job, whatever the circumstances affecting it, the important thing to remember is that for best results, the equipment decided upon must be properly designed and must function satisfactorily at all times.

Certain types of apparatus such as washing machines, steam generators and the like, can be purchased ready made from reliable manufacturers who specialize in the production of such equipment. Where these units are suitable for the job at hand, the technical man from a reliable firm that manufactures and sells industrial cleaning materials can recommend reliable sources of supply because of close association with all types of industrial cleaning conditions and problems.

When Special Equipment May Be Needed

When, on the other hand, the nature of the work to be done is such that standard apparatus will not meet the requirements, "custom made" equipment must be fabricated based on the particular job in question. And, here the expert on industrial cleaning can be of great assistance not only because of his experience and background, but because he has at his disposal the company's engineering department which may be in position to design and develop various kinds of cleaning and related equipment. From this department, the representative may be able to secure blueprints and detailed directions covering the construction of many types of specialized cleaning and stripping units. What is more, entirely new pieces of equipment may be designed, when necessary, to meet certain unusual requirements.

Flow-on Stripper Setup For Heavy Machinery

For example, there is the case of a Kansas City firm that specializes in selling and servicing tractors, earth-moving machinery, road-grading equipment, etc. A big part

of this company's service work involves the repair and reconditioning of equipment. One of the major problems is stripping the units prior to their being repainted. Sometime ago, the technical service representative of a cleaning materials manufacturer in that area was asked for suggestions on how this paint stripping work could be handled more efficiently. After carefully checking the situation, this man recommended the hot flow-on paint-stripping method.

Since no ready-made units were available to exactly meet the requirements of the job, the technical service representative wrote his company's engineering department for assistance.

Within a few days, a detailed drawing of a flow-on paint-stripping unit arrived, together with specific information on such important items as the type of heating element to be used, the pumping equipment needed, and the proper fittings, piping and hose required to make an efficient installation. With this data on hand, the actual building of the paint-stripping unit was a simple matter, and a practical compact setup was the result.

Alkaline-Type Remover; Shower-Type Nozzles

With this specially designed unit, stripping paint from tractors and similar construction equipment is almost as easy as watering the lawn. A solution of suitable stripper—a heavy duty alkaline type paint stripper which will remove grease and oils as well as paint—is flowed over the work through a hose equipped with a shower-type nozzle. This nozzle is built to provide the right type of flow of stripping solution to produce maximum area coverage without any serious back splashing on the operator.

When the solution reaches the floor (which has a slight pitch) it flows into a sump tank from where it is sucked through a strainer back into the solution tank. Here it is reheated before being circulated and used again.

Everyone who has seen this unit in operation is thoroughly sold on the ease, speed and economy with which it removes paint. As a matter of fact, paint stripping has become such a successful operation for the firm, that it has taken to doing contract work for outside companies, thereby making extra profits through this particular activity.—*Oakite News Service.*

Sid Macy is Added to M. & W. Sales Force in N. J.

Dr. G. Klinkenstein, President of Maas & Waldstein Co., manufacturer of lacquers, enamels and synthetic finishes, located in Newark, N.J., Chicago and Los Angeles, announces the addition of another technical service field representative to cover part of the New Jersey territory.

Mr. Sidney G. Macy has recently been appointed to the M & W sales force and has been assigned to cover a large section of the northern New Jersey area. Mr. Macy is experienced in the field of specialized production finishes and has completed a training course in the company's Research and Development Laboratories and Pilot Plant.

It is expected that Mr. Macy's experience and knowledge of handling all types of specialized production finishes will be of value to manufacturers in the northern New Jersey area in making their finishing problems simpler.

Yes—100 years is a long time to be in business—particularly in the past century when America has seen so many changes . . . boom periods and depressions, the development of push button production, jet planes and skyscrapers. It's no accident that STANDARD VARNISH WORKS and TOCH BROTHERS, Inc. survived and expanded during this trying but glorious century. They relied on the consistently high performance of their products to keep their names in the front ranks. Through research and exhaustive laboratory and field testing they developed new product finishes for industry, new techniques and chemicals for the protection of masonry structures, and pioneered in the home decorating field. They are justly proud of their hundred year record, and today, with this long successful history behind them, and products that have gained nation-wide recognition, they are uniting under the banner of STANDARD-TOCH CHEMICALS, Inc., beginning a new period of expansion and inventiveness that promises to be even more illustrious than the past.

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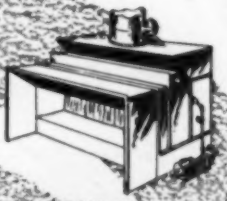
26 different models

MATERIAL TANKS
2- to 60-gal. capacities

NOZZLES
1050 combinations



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4 light-weight units

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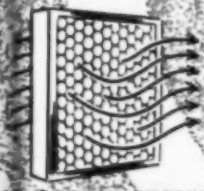
7 models supplying clean, dry air



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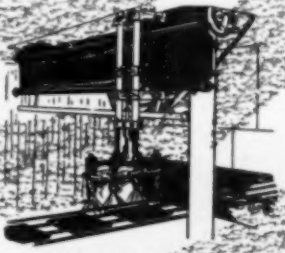
fresh, filtered and heated air



AUTOMATIC FINISHING EQUIPMENT
for lower production costs

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12 types of hose,
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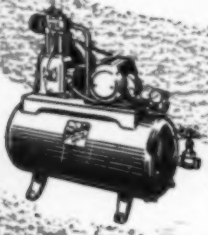

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Wherever fine finishes are applied, you will find Binks precision made spray painting equipment... and for good reasons:

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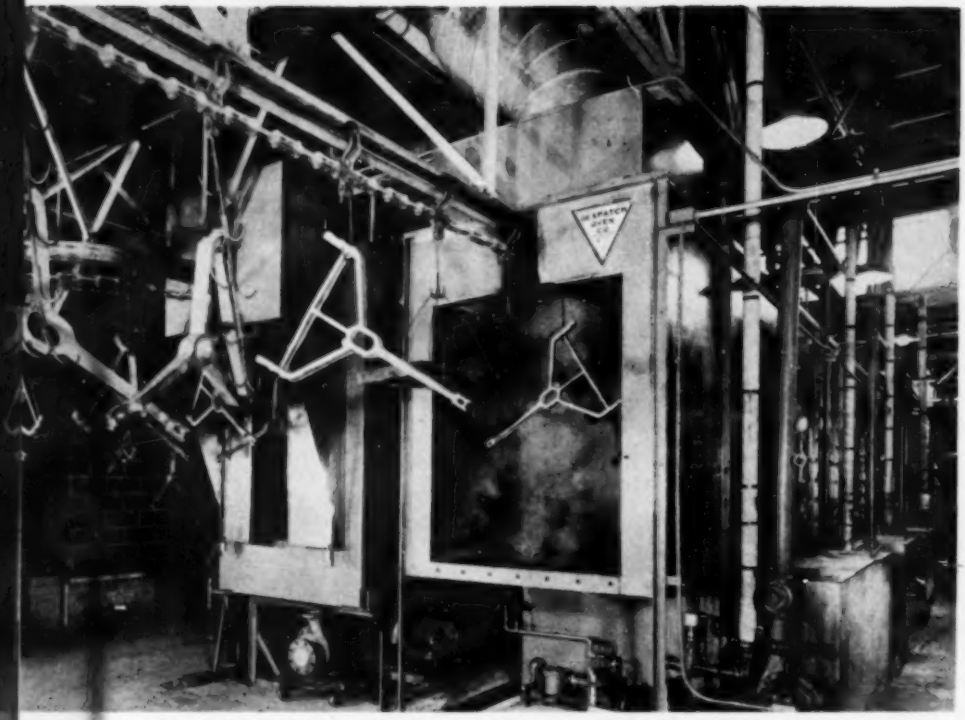


Parts move through 5-stage metal washer at right, and then through dry-off oven at left.

Spray painting base castings. Where different parts and finishes must be applied, several individual spray booths may be more desirable than one or two conveyorized booths. Here different materials, as well as different parts, can be coated in separate spray booths.

Finishing TOLEDO SCALE PRODUCTS

This setup includes five-stage metal cleaning and rustproofing, oven dry-off, spraying a prime coat, knife glazing prime-coated castings, sanding, tack ragging and two coats of enamel, each followed by baking in an oven.

BY R. L. McCLELLAN
Assistant Foreman of Finishing
Toledo Scale Company

EVERY WEIGHING scale is an important piece of precision equipment, both in utility and appearance. Where goods are bought and sold by weight, the weighing scale is closely watched by everyone concerned. It is right out in full view as long as it is in service, therefore its finish must be durable and attractive.

These finish requirements also apply to food machines manufactured by our company—choppers, slicers, saws, and tenderizers. In their use, sanitation and ease of cleaning are directly tied in with a smooth clean looking finish. Throughout the 50 years that have elapsed since the first Toledo Scale was built, careful attention has been given to the finish on all of our machines.

The products just mentioned have cast metal frames. Other parts are made of cold rolled sheet steel. Because of the wide divergence of parts, plus differences in the thickness and types of metal used, we do not have a completely conveyorized finishing system.

Surface Cleaning; Rustproofing and Priming

We use the finished parts stock room method of production. All parts of our products are surface cleaned, rustproofed and primed, and then distributed either for further finishing or delivered to the parts stock room.

To prepare for the beginning of surface treating operations all parts are hung on an overhead monorail conveyor which passes through the 5-stage metal washer. Within the washer they are sprayed from four sides with the following solutions at 30-lbs. pressure:

1) Alkali cleaning solution at 130° F.
2) Hot water rinse at 140° F.
3) Rustproofing solution at 150° F.
4) Cold water rinse.
5) Chromic acid (mild) at 150° F.

After the fifth stage the parts pass through a direct-fired gas oven where they are dried at 400° F.

As product parts are taken off the conveyor, they are distributed according to certain classifications

and the finish to be applied. Some inside parts require only a single coat of oil-base chromate primer; after baking for 30 minutes at 300° F., these items are delivered to the finished parts stock room. Other inside parts are primed, baked and then given a coat of aluminum lacquer. After the last coating has air dried these parts are delivered to the stock room.

For castings and outside parts we use three colors of flat synthetic enamel primer—gray for gray finish, white for white finish and brown for black or aluminum. All primers are sprayed on and the prime coat is baked in batch-type convection ovens at 300° F. for 30 to 60 minutes, depending upon the size and kind of part that has been painted. Gray and white primed parts are baked for the same length of time at 250° F.

In order to avoid extensive and complicated masking, some castings are prime coated, baked and then taken to the machine room for boring and tapping operations. Upon completion these parts are ready for the finished parts stock room.

All Over Putty Glazing Produces Smooth Surface

The entire outside surface of all castings is given a glaze coat of putty which is applied by knife and rubber squeegee. This glazing coat is necessary to produce a smooth even finish, for all bare castings are given a light sandblasting and some grinding before any other surface treatment or finishing begins. This type of prepared surface generally requires filling with a putty glaze.

The glaze coat will air dry overnight, or it can be force dried in an oven for 45 to 60 minutes. It must be perfectly dry before the surface is sanded. We sand with No. 4/0 sandpaper. The surfaces of castings are blown off with compressed air and tack-ragged before they are given a coat of synthetic enamel sealer. This sealer coat is baked for 45 minutes at 250° F.

After they have become cool the coated castings are inspected and are spot glazed; workmen knife on the same kind of putty as was used for the all-over glaze coat. The spot glazing is dried in an oven for 30-minutes at 250° F. Then follows dry sanding with No. 4/0 sandpaper, blowing off with compressed air and wiping with a tack rag.

Two Enamel Top Coats; Two Bakings

The first top coat of white synthetic enamel is sprayed on and then baked for 25 minutes at 270° F. After cooling, the surface is lightly scuff sanded, cleaned-up, and then the second top coat of white enamel is sprayed on. This is baked for 40 minutes at 270°F. Finished parts are taken to the assembly department.

Base Castings Masked To Produce Stripe

On castings that form the base of the slicer and food chopper, the second coat of white enamel is baked for only 20 minutes at 270° F. Then the upper part of these somewhat intricate castings is masked by using pre-formed kraft-paper covers which we hold firmly in place all around the lower edge

Government Finishing "Specs" receive double protection through

ZAPON Standards!

ZAPON finishes for Defense items conform exactly to Government specifications. In addition, they measure up to ZAPON's own high standards of quality—standards as exacting as those of the Government.

ZAPON is constantly at work on product improvement. The result—finishes by ZAPON widely accepted as standard.

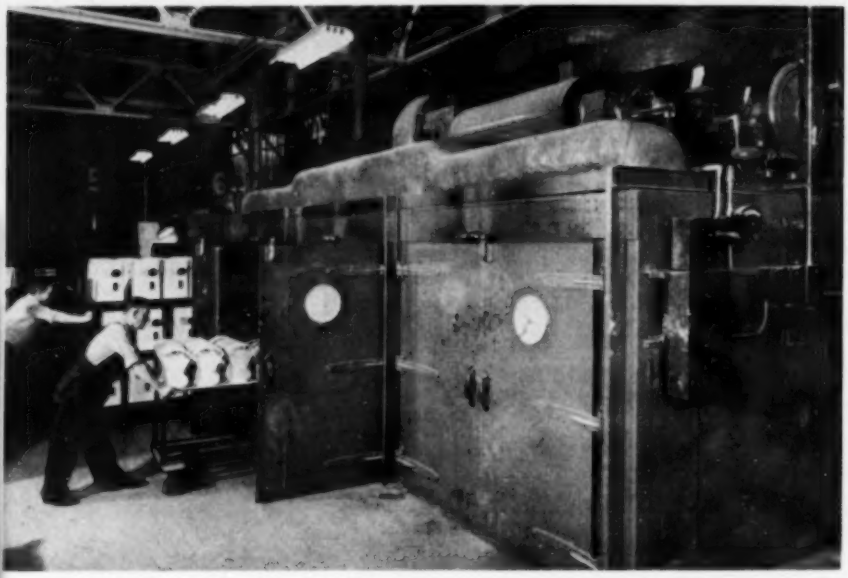
ZAPON not only provides finishes that conform to government "specs" and ZAPON standards of quality—our Customer Service representatives will help set up your finishing department to fulfill government contracts with speed and economy.

Service from every angle . . . that's ZAPON

ATLAS POWDER COMPANY

Industrial Finishes

Stamford, Conn. • North Chicago, Ill.



Finishes are baked in batch-type gas-fired convection ovens. Individual ovens are handy and practically necessary where different temperatures and baking periods are required.

with pressure sensitive tape. The exposed lower portion is then sprayed with gray enamel to form the stripe that produces the 2-tone effect. These castings are then moved back into the oven where the finish is baked for 40 minutes at 270° F.

From time to time, we have been asked if there is not a simpler, faster and more economical way to finish these appliances. There may be, but I question whether the fine quality of our enduring finish would be the same—and that is important, both to us and to our customers.

Lay 'em on Rubber for Sanding or Rubbing. For sanding the sealer coat or rubbing the final coat on pieces of furniture or panels, have you ever considered supporting this work on a rubber-covered board, for small products, or a rubber-covered low bench for the larger and heavier pieces? Clean resilient rubber prevents dents, bruises and scratches on the under side of the piece being worked on. It speeds up the operation because the workman doesn't have to be so careful in handling the piece on the rubber-cushioned board or bench. A board or bench top with rows of shallow rubber bumpers or "cups" makes it easier for the operator to pick up flat pieces because he can easily get his fingers under the piece. Sometimes little things like this save time, save the repair of damaged places and speed up the work to the point where production costs are actually reduced. It's worth thinking about.

Belting Dust for a Quick Knockout with a TORIT DUST SEPARATOR

In the illustration above, the hood and connecting pipe for the left hand abrasive belt have been removed. This has been done to show how this TORIT No. 19-FB Dust Separator fits into otherwise idle space.

TORIT

Torit Dust Collectors are available in both cabinet and cyclone types. They range in size from ½ to 5 H.P. and up to 2,100 cubic feet of air per minute.

Torit dust collecting equipment represents a compact, highly efficient design. It can be tucked into odd corners where it will not interfere with operations or cut off light. An installation like the one above handles large volumes of dust. Working conditions are improved and cleaned air is recirculated to minimize heat losses.

There are TORIT Dust Collectors for every standard dust creating machine, and special adaptations can be quickly fabricated. For details and latest TORIT catalog, write:

Torit Manufacturing Co.
300 Walnut Street St. Paul 2, Minnesota

Keep your

Consult an Industrial Finishes Specialist

No matter what you manufacture for the armed services, highly specialized knowledge is required to get the proper protective coating on your product.

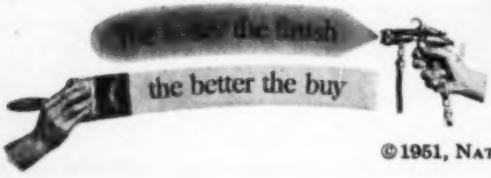
For example, this 16-inch seacoast rifle generates tremendous heat when the gun is fired. The finish must be able to withstand this heat, and also protect the gun from the constant abuse it takes from the elements.

Other products offer comparable problems. Corrosion and heat are only two of the many threats that a quality finish can combat.

Whether you're manufacturing for defense or for civilian markets, it pays to consult your Industrial Finishes Specialist. He knows how to help make your consumer goods more durable and saleable, what are the required specifications for government work, the proper finishes to do any job . . . whatever it may be. For he's the technically trained, sales and production-minded representative of your Industrial Finishes Supplier.

Let him help solve application problems, show you how to possibly cut production cost ...add durability and beauty to your products.

Remember—more and more of your customers *start buying with the finish in mind.*



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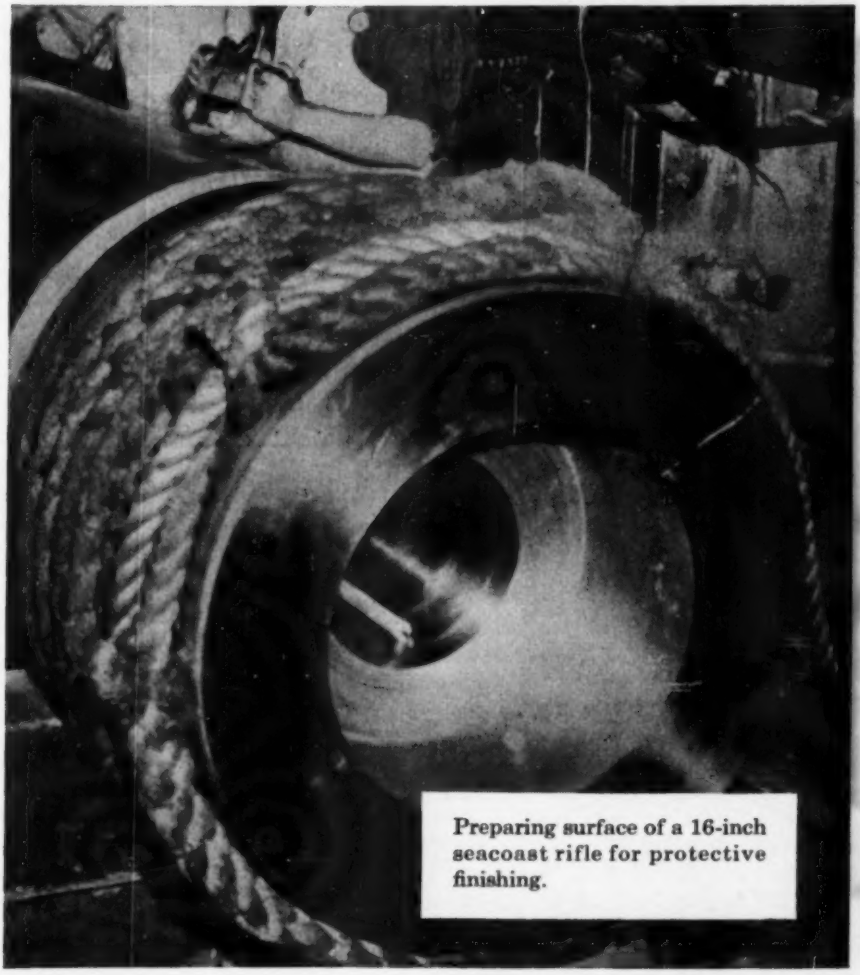
defense lines booming . . .



Preparing surface of a 16-inch seacoast rifle for protective finishing.

For More Spray Gun Efficiency

BY H. H. CONNELLY

Spraying insides of holes (for belt and gadgets) in tops of work benches, using a slender extension fitted with a spray head that sprays an umbrella-like pattern.

YOUR SPRAY GUN, like any piece of equipment, is a precision tool. The job it does for you will depend upon your knowledge of its possibilities—and upon limitations that have been built into it by the manufacturer. Making spray guns has been left to companies who have grown from small shops to large concerns only through their devotion to producing a superb product. With this assurance (and accepting the fact that we may receive a lemon occasionally) we can mosey to the other side of the fence and chew on a few ideas for getting more for our money.

Receiving Dept. Inspection For Possible Damage

First, let's start on the receiving end. You order a supply of spray guns for stock. One does break occasionally so we may need a replacement quickly. When you open the spray gun packing box you may find a gun with parts broken. Who is to blame? Who broke the gun? The manufacturer? The transportation company? Or someone in your stock room? If the gun has been in stock six months you'll have a sweet time trying to get it replaced free of charge. In fact, most of us would be slightly embarrassed to even try, after an elapse of six months.

Your safest bet is to open every box (and as far as that goes, all stock) as soon as received and inspect it for possible damage or defects. Damaged parts can be reported and whoever is at fault may be held accountable.

Here is another suggestion worth looking into, if you have the courage to read a few more paragraphs. Don't throw away the instructions and parts list unless you have a raft of them at hand where you can find them. You will want to refer to them when you order replacements; and if they are placed in the hands of the man who oper-

ates the gun, he may read about the care of the gun and find out something he didn't know before.

You May Save a Lot By Changing Guns

Are you using the best spray gun for the job? Let's put it this way. Are you using just a spray gun when a special spray gun or attachment can be secured to do the job infinitely better?

Some time ago a concern was finishing work tables containing numerous belt holes, bolt holes and just plain holes for gadgets. All had to be painted inside. For years they had been using a rag wrapped around a stick, and always succeeded in getting as much paint on top as in the hole.

To their surprise they discovered, by chance, that the gun manufacturer made an elongated attachment ⅜-in. in diameter which produced an umbrella-like spray pattern of 360°. By moving the gun upward through the hole, a perfect coating could be left on the walls. Production jumped from 20 tables per hour to 80.

Conveniences That Save Time and Money

Try these five suggestions for improving your sprayer efficiency:

1) Provide a small work bench near the spray booth with a light duty vise. This will save many a step by the operator—steps that can be put to more profitable use. A few tools and a drawer in which to lock them when not in use is good planning.

2) A small cabinet near the work area is ideal for storing small replacement parts. These run from washers the size of a thumb tack to gun handles, fluid tips, needles, and spray heads. Pigeonholes serve very nicely for storing these parts and each one should be labeled and a careful check kept on low supplies. Particularly under present procurement conditions is it wise to have a supply of service parts.

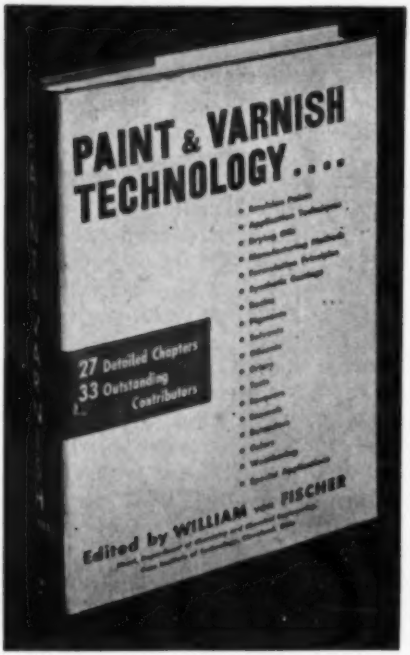
3) For keeping the fluid tips and air caps clean, provide small glass jars filled with clean solvent near the spray booth. Drop them in when finished for the day. You'll find a clean tool is indispensible—and the best cure is to keep the solids fluid. But remember, this practice is not recommended for the spray gun. Never drop a complete spray gun or spray head in solvent. The lubricant on parts and in packing will be removed by the solvent. And don't use caustic as a solvent. Use only the regular solvents and thinners recommended for the material you are spraying.

Fluid Strainer; Connectors; Pressure Gauge

4) It isn't always the big things that make your spraying efficient. Look for the little known accessories that add dividends to the gun performance—the fluid strainer for one. It is small, light weight, and is fastened to the handle of the gun.* You will find it saves endless air cap cleaning when the hardened particles of finishing material come loose in the tank and fluid hose.

*If the operator complains that his attachment makes the spray gun too heavy for steady hour after hour production spraying, it may be placed farther back or at the intake end of the hose line.—Ed.

(Continued on page 70)



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5) By all means look into the quick detachable-type connectors. A gun can be detached from a hose while the operator is making up his mind to look for a wrench.

6) Don't forget the spray gun pressure gauge. This is no more than a conventional type pressure gauge which is fastened to the gun to permit the operator to quickly check his working pressure. The important pressure to consider is the one at the air inlet in gun handle. More than one bad dose of orange peel will pay for its use. Remember, it is not uncommon for the transformer pressure to read 60-lbs. and still have only 40-lbs. at the point of gun entrance, depending upon the air hose diameter and length. By the use of the proper diameter air hose and full opening connections, this drop can be held to a minimum.

7) Here's the last: Are you using the correct air cap, fluid tip and needle? The wrong cap can waste a lot of material or it could be costing a lot of labor by not putting out enough. One concern cuts its filler material cost 40% by changing fluid tips and needles. Check with your gun supplier. He will know.

Metal Show In October

The National Metals Exposition will be held at Michigan State Fair Grounds in Detroit, Oct. 15-19.

Ready for introduction to all metals industries will be a score or more of new time-saving, manpower saving machines; also materials and processes that will speed up production.

Worth noting will be a simple, fast, fool-proof method of bonding silicone rubber to metal and ceramic surfaces. Also an easy to apply and easy to remove corrosion resistor that will make shipping of metals overseas and the storage of metal products anywhere in any climate safe and simple.

for volume finishing

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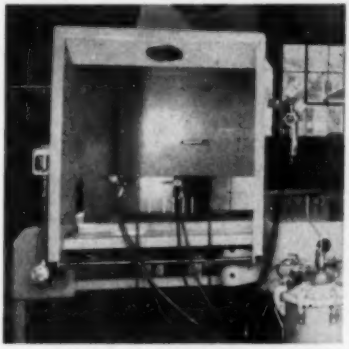
CAPITOL HIGH SPEED ELECTRIC SPRAY-BAKE CONVEYOR MACHINE

It will accommodate pieces of from less than 1-in. diam. to over 12-in. diam., which require a high quality finish, such as shell noses, cartridges, weapon parts, also clocks, pens, pencils, door knobs, etc. Positioned on work holders, pieces are automatically sprayed, travel on through a drying chamber for solvent evaporation, and then into electric strip-heated bake oven from which they emerge for a cooling period before being removed.



View of booth showing automatic spray guns — lower view shows conveyor arrangement and drying and baking compartments.

Recommended for speedy, high quality production, and exceptional savings in coating pieces of various sizes and shapes that are difficult to handle.

LET US MAKE A TEST RUN OF YOUR OWN WORK SAMPLES— NO OBLIGATION.

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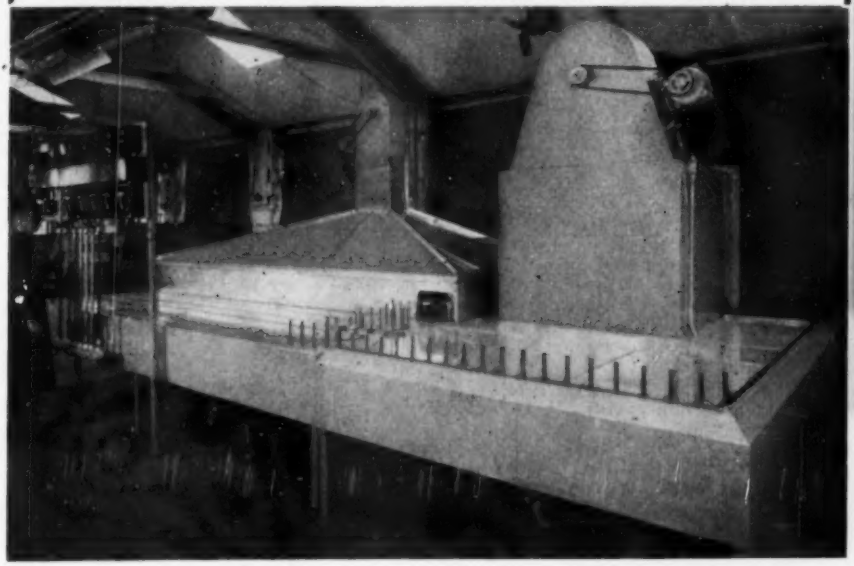
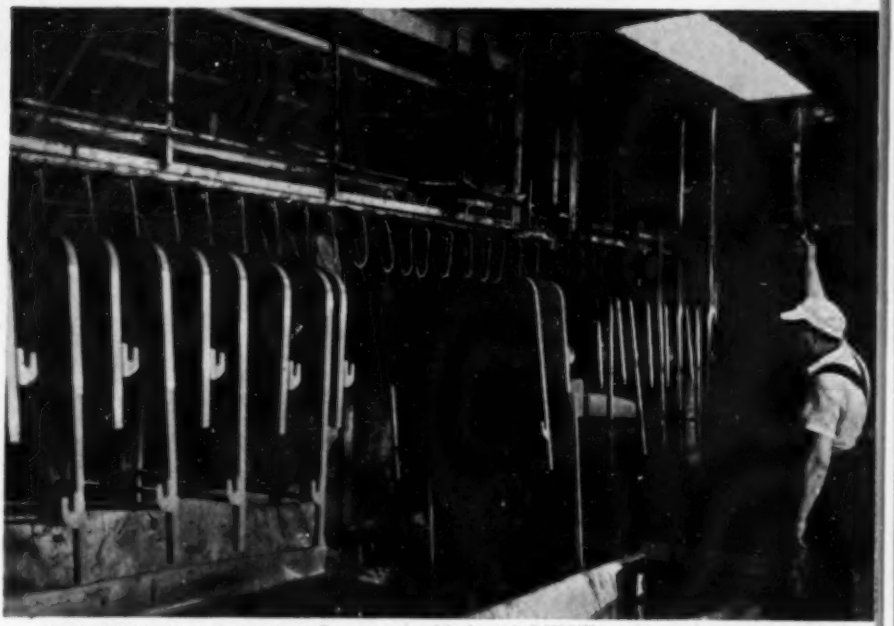
The CAPITOL MACHINE COMPANY

DANBURY, CONNECTICUT **Tel. Danbury 3-2758**





IT TAKES ONLY A FEW SECONDS to flow-coat metal beds with DULUX on this modern, conveyorized production line . . . but the special Du Pont formula gives years of protection! Practical resistance tests have proved that DULUX has unsurpassed resistance to damage from temperature extremes, spilled liquids, hard knocks and other deteriorating influences to which metal-furniture finishes are normally subjected.

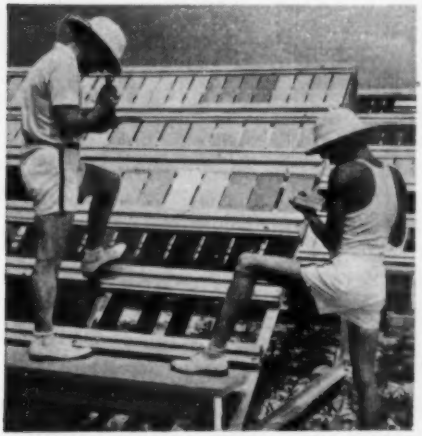
BED TIME STORY WITH A BRIGHT FINISH

DULUX for metal beds—typical of the 1200 Du Pont finish formulas working for industry today

● With a special DULUX finish formula, developed by Du Pont chemists in cooperation with a leading bed manufacturer, these metal beds for institutions can be flow-coated in a matter of seconds as they move along conveyors. The finish is then bonded to the metal at high temperatures . . . produces a rich, durable gloss that spells value to dollar-wise purchasing agents for hospitals, schools and hotels.

Du Pont finishes like this have helped hundreds of manufacturers cut production time, reduce cost. Du Pont finishes make produc look better, wear better, sell better. More th 12,000 of them have been formulated by D Pont chemists over the last twenty-five years satisfy the varied and specialized requiremen of industry. Remember, whatever *your* finis requirements, you can get expert help by co tacting the Du Pont sales technician in yo area . . . or by writing E. I. du Pont de Nemou & Co. (Inc.), Finishes Division, Wilmingt 98, Delaware.

TRUCKS BECOME TRAVELING BILLBOARDS building goodwill toward the organization behind them, when Du Pont DULUX Enamel goes on. Both bus and truck fleet operators have learned that tough, handsome DULUX is in a class by itself when it comes to standing up to rough treatment on the road. Its long-lasting good looks can mean better public relations, less paint shop "down time," lower maintenance costs.



KEEPING 'EM DOWN ON THE "FARM"! Not satisfied with exacting laboratory tests alone, Du Pont paint chemists test exterior finishes under all kinds of weather conditions at Du Pont "paint farms" located throughout the country. Here paint samples on test panels are exposed, sometimes for years, to the most severe outdoor exposure . . . must measure up to highest standards.

HELPING MAKE MILLIONS OF SALES! DUCO and DULUX Furniture Finishes provide a rich, satin sheen that is the hallmark of quality furniture . . . have helped to sell millions of pieces at all price levels. Moreover, these outstanding Du Pont finishes resist discoloration, cracking, crazing and alcohol spillage for years . . . enhance the reputation of both the manufacturer and the retailer.

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Why Color Changes IN FINISHED FURNITURE

BY GEORGE B. GIBSON*

THE PURPOSE of this article is to discuss the various aspects of discoloration that occur in finished furniture, particularly on the so called "blond", "wheat" and "toasted" as well as on light and dark grey colors which are so much in vogue at the present time.

The problem that faces the finisher is to produce a uniform standard color which, after approval and adoption by his company's sales department, must be maintained with as little change as possible under storage, exposure and service conditions. There are several reasons for striving to maintain uniformity and permanence of color, some of them being as follows:

1) Many retail customers buy furniture on a piece by piece basis. The reason for uniformity here is obvious.

2) Furniture may be exposed to very strong sunlight in store display windows.

3) Furniture may be stored in dark warehouses for extended periods of time.

4) Furniture may require finish repair long after its original finish was applied.

While the problem of yellowing does not exist to any extent in dark colored furniture, it is something to think about in the blonds, light colors and greys because of the color contrast with light systems and a shift toward a greenish cast with the greys. The furniture industry therefore demands *pale colored lacquers of non-yellowish properties.*

The finisher must choose pale finishing materials and assure himself, by suitable testing procedure, which are the non-yellowing or (better still) the color-stability properties of these materials.

It is my intention here to direct attention to factors that tend to influence the color stability of a transparent or semi-transparent finishing system on wood. Since finishing systems involve a variety of constituent materials and because every finisher has his own partic-

*Canadian Industries, Limited, Paint & Varnish Division.

ular method of arriving at a desired color, it is intended to discuss each component separately. Simple tests, described here, will help the finisher to examine the resistance of his finish to yellowing, or any tendency of the components of his finishing system to change color under the influence of light.

Time, Light Change Color; Curse of "Yellowing"

Many chemical substances, when exposed to light of certain wave lengths, undergo a chemical reaction. In other words, a definite change takes place within the molecules of these substances and this change is due to the action of light alone. Sometimes light causes a reaction to proceed at a faster rate—a reaction or a change that would have taken place anyway, but at a much slower rate.

Substances that do react to light in such a way are called photosensitive. Outstanding examples of photosensitivity in substances are, of course, the silver bromide or chloride in ordinary photographic film, or fluorescent substances that glow in the dark after exposure to light.

There are chemicals which may exist together in the dark without anything happening to them, but on exposure to light they combine sometimes with explosive violence. *Light is a form of energy, and with certain substances this energy is*

Do your blond finishes turn yellow? Do others fade or discolor? Here's how to find out whether or not your finish will discolor or fade, and under what conditions. Also, how to trace down the cause, to find out if it's the wood, glue, bleach, stain, wash coat, filler, sealer, top coat, or the final rubbing, polishing, waxing or buffing.

sufficient to promote change. In the case of organic finishes, such as we know them today, many do react to light and this usually manifests itself in color changes one of which may be yellowing. It is also a well known fact that the opposite may take place; that is, a substance may change color in the dark and bleach out on exposure to light. An average outdoor house paint, based on linseed oil as a vehicle, will behave just like that. Yellowing, in this case, is due principally to the linseed oil, as distinguished from darkening occurring with some paints that contain white lead pigments which will darken on exposure to certain fumes containing sulphur.

Light Fastness and Fading Of Various Dyes

Another example of light action of direct interest to the finisher is the light fastness of organic dyes. As everyone knows, many dyes will fade rapidly on exposure to strong light. The term "light fastness," as applied to dyes, has become a most important criterion in establishing the quality of a dye—outside of its color.

The preceding remarks may be summarized by recognizing that *light is a form of energy which initiates, promotes or accelerates certain changes in many substances.* Any changes that result in rapid color transition from the original standard color, are of direct importance to the finisher.

We recognize from the outset that because of the complex composition of organic finishing components, particularly wood finishing systems, we may expect some color changes will take place; our problem, therefore is to choose components that will give us a minimum color change consistent with time factor and color tolerance limits.

Color Changes Caused by Characteristics of Wood

Because wood itself is an organic material of some complexity, it is logical to consider its light fastness first. We can easily find out that wood will change its color quite rapidly when exposed to strong light. In fact it is strongly photosensitive. It is possible to produce patterns on a clean piece of smooth mahogany, for example, by covering areas of a panel with an opaque material such as foil and exposing it to sunlight or to an ultraviolet arc.

Wood will generally darken on exposure to light and, depending on species or cut, will do it by changing to a greyish brown of different undertones, or in some cases to a greenish tone.

Most species of unprotected wood, when exposed to sunlight and rain, will always change to a grey color. Sometimes this grey tone acquires a characteristic silvery sheen and is quite attractive. Incidentally, it may be suggested that a finish simulating weathered wood could be attractive for rustic furniture, and is offered here as a hint to some finisher who might wish to try it. ["Driftwood" has been popular at different times and in certain localities as a finish for interior woodwork, picture frames, furniture and some souvenirs.—*Editor*]

(Continued on page 78)

TAILOR-MADE FINISHES, such as Reliance is supplying to many of the country's leading manufacturers, are reducing production losses . . . cutting finishing time . . . solving all kinds of finishing problems. May we be of service to you? Reliance laboratories' resourcefulness and experience are at your disposal without obligation.

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Color and color variation in wood depend on natural color bodies, resins and mineral streaks in the wood. In most species the sapwood is very light, while rich color dominates the heartwood.

Chemical Treatments That Change Color in Wood

The various chemical treatments that wood may undergo during its fabrication into finished furniture will also have an effect on color change. Thus, in most cases, bleached wood will darken more rapidly than unbleached wood. This apparent darkening is due in part to the greater contrast ratio than in the case of unbleached wood, but it is also due to the tendency of bleached wood to return to its original color.

In thin veneers, slight amounts of animal glue penetrating to the top of the veneer may contribute somewhat to a color change later.

In any color change due to light, the more the absorption of light [by a film of finish] before it reaches the wood, the less will be the color change. Generally it may be stated that each treatment wood receives in the finishing process will stop a certain proportion of light and therefore lessen, to a degree, the effect of light on the wood. The more opaque the finishing coats, the less the effect of light on the wood. All substances have different transmission values for different wave-lengths of light, and for this reason, the effect of light on color change of the wood only should be determined experimentally in a simple manner as detailed in the following paragraphs.

"Yes sir, Mr. Hensley, it's one of the best looking finishing jobs I've ever seen!"

Test a Panel With and Without Complete Finish

Experiment I. Take a panel of wood whose contribution to color change with and without the finishing system it is intended to determine. A convenient size panel is 6x12-in. Sand the surface smoothly and *finish one-half of the panel with the complete finishing system.* Allow the panel to age to the extent of time usually allowed at the plant before the furniture is shipped. *Cover one-half the panel at right angles to the finished half with aluminum foil and expose it to strong direct sunlight* or to the U-V arc lamp, such as weatherometer lamp. Examine it every day. Darkening will start to take place within 24 hours, depending on the wood. There will be less color change on the finished parts.

(Continued on page 80)

AN EXACT SCIENCE

THERE'S NO "by guess and by gosh" about Spruance Quality stains, fillers, sealers, lacquers, synthetic enamels — primers, paints and varnishes. Every step of their making is laboratory controlled and supervised throughout.

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THE GILBERT SPRUANCE COMPANY
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Different woods and even different flitches of the same veneer will show some differences.

From this experiment you learn that wood itself will produce color changes which must be considered when you set up standards for light colored furniture. Also, when examining complaints this should be considered and allowed for. Actually the limits of color tolerance in wood finishing systems must take into account this natural wood color change. There is little that can be done to prevent this from occurring, outside of choosing and using some pigmented components within a system (for example, pigmented light colored lacquer toner). While detracting somewhat from clarity, this procedure will definitely help to prevent the wood from darkening to any observable extent.

Wood darkening is not only largely prevented in dark colored furniture, but is not readily observable if it only occurs to a slight extent. In dark colored furniture the light fastness of the dyes used is more important, since a drift of one color component will throw the entire color out of balance.

Having considered the effect of light on color changes in the wood itself, let us direct our attention to the various finishing components of furniture. It is best to consider each one separately and arrive later at a complete system, with some knowledge of how each component affects the particular property of color change on exposure to light.

As previously pointed out, bleached wood tends to return eventually to its darker color. Of course it is understood that this tendency is counteracted by the protective action of the applied finishing system, and minimized by keeping furniture in diffused light, which is its usual service exposure.

Some woods contain colorless mineral matter which, on treatment with some bleaches, particularly hydrogen peroxide types, develops color which occurs either in streaks or in a pinkish discoloration. In such cases the usual procedure is to shade out these areas by means of some toner, since these streaks will not bleach out by more treatment with hydrogen peroxide. While this is not due to any light effect, it is mentioned for completeness.

The procedure indicated in *Experiment I* is applicable in the case of a bleached piece of wood, and is recommended to the finisher to determine the degree of darkening of bleached wood.

In many cases, particularly in the greys and other colors, a weak body stain is used over the entire piece of furniture as a starting operation. In many instances a water-soluble dye is used and lately NGR (non-grain-raising) stains have come into extensive use. While body stains of the above-mentioned types are usually light fast, they will vary from manufacturer to manufacturer because of the different dyes used; usually it is possible to select the most light fast dyes by a simple experiment.

Experiment II; Test Different Stains

Select a panel of wood about 3x6-in. and sand it thoroughly and evenly. Prepare dye solutions at the concentrations recommended by

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the manufacturers, or at concentrations at which they are going to be used. In comparing one dye against another, it is imperative to use it on the same panel. Divide the panel equally in half and dip each half for exactly the same length of time in each dye solution under comparison. Dry for the required time and shield one half the panel longitudinally with tinfoil. Expose and examine as under Experiment I.

The reason for using a dipping method in this test is for uniformity of application, since in many dyestuffs or NGR dye solutions, wetting or penetrating agents have been incorporated and the dyes would therefore have different penetrating powers. Penetrating power is important, since the depth of wood staining depends on it. The use of the same piece of wood for comparing any two dyes is important, both from the penetration standpoint and from the fact that wood contains greater or lesser amounts of substances of tannin type which have the effect of mordants for some dyes and may produce differences in reaction to light.

This simple experiment will help the finisher, not only in the selection of the best material, but will expand his horizon in appreciating any differences that exist in different dyes with regard to color fastness.

Test the Wash Coat; Also, Wood Filler

Usually a wash coat consists of a reduced standard lacquer or sealer of about 6% to 10% total solids, and will therefore come under that heading later in the article. However, a warning may be sounded here about using a mixture of all types of "left-overs" for this purpose. True, the amount of wash coat material laid down is usually negligible as far as film thickness is concerned, but even such a thin layer of some substances may cause noticeable yellowing.

Wood filler is probably the most important component of a wood finishing system because it forms a basis for all subsequent coats with respect to proper appearance and, to some extent, economy. Since we are concerned only with its effect on color change in this discussion, it is important that some slight mention of its general composition be made.

Usually, a typical filler consists of the filling extenders, principally silex silica, asbestine or terra alba, some coloring pigments, binder or vehicle and solvents. The vehicle will concern us principally, since it is the major contributor to color change.

Linseed Oil in Filler Can Cause Yellowing

Old type wood filler vehicles consisted chiefly of linseed oil, raw or boiled, some japan driers and antisetting agents. A large proportion of commercial fillers still contain essentially the same ingredients and are usually referred to as "orthodox" types. Linseed oil vehicles were eventually replaced, either wholly or partially, by varnish type vehicles, synthetic resin vehicles, or combinations of all of these.

Linseed oil may still be found in many fillers in small propor-

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tions because of its property of wetting the wood and enhancing the grain. Because of its slip, the wiping properties of fillers are improved. As was pointed out elsewhere, linseed oil filler will yellow when kept in diffused light or complete darkness, but will bleach out again on exposure to light.

Many examples have been observed where yellow spots on pale furniture were traced to the filler, with linseed oil as a culprit. The remedy is to completely wipe off the excess filler from the interpore space, or to resort to the use of fillers of the "Flash Dry Type".

Flash dry type fillers, while not so suitable for dark rich looking furniture, are quite well suited for use on blond and grey effect furniture, since the aim here is the overall color with flat grain pattern, and not the deep rich contrasting show of grain design as in dark furniture. Flash dry fillers are usually formulated at very low vehicle or binder level and the solids are carried principally by the solvent. The very low vehicle minimizes any yellowing effects; usually these fillers are based on non-yellowing or nearly non-yellowing synthetics.

White Fillers; What to Look for Here

White colored fillers are used for light colored finishes on furniture. A point to look for here is that no white lead pigments are used to give the white color, because of a possibility that when exposed to atmosphere containing even traces of hydrogen sulphide, discoloration of the white lead pigments might occur. While it may be argued that it is unlikely that penetration of gas to the filler will take place, it is nevertheless true that most organic films are quite permeable to gases because of sub-microscopic porosity. A test might be made for any light discoloration of filler in a manner analogous to Experiment No. 2, but substituting fillers for the dye.

Another point worth mentioning is that some fillers contain dyestuffs. Because of the necessity of using oil-soluble dyes in filler composition for solubility reasons, it will often be found that the light stability of such dyes is not too satisfactory and a color change due to this cause may occur.

Wood Sealers; Stearates; Possibility of Yellowing

Many furniture manufacturers have adopted the practice of using the same composition for a sealer as that used for the top-coat. This procedure usually has an advantage of producing a "tougher" finish, less subject to chipping or impact bruises by hard objects, and better overall mar-resistance. On the other hand, many finishers still use sanding sealer formulations that contain stearates as aides in sanding.

As a rule, stearate-containing sealers of sound formulation have little tendency to change color, possibly due in part to some light reflection by the zinc stearate. On the other hand some resinous materials and plasticizers, used in sealers as modifiers for the film former, have a tendency to yellowing despite the moderating effect of zinc stearate, and sealers should be examined for this effect also.

(Continued on page 86)

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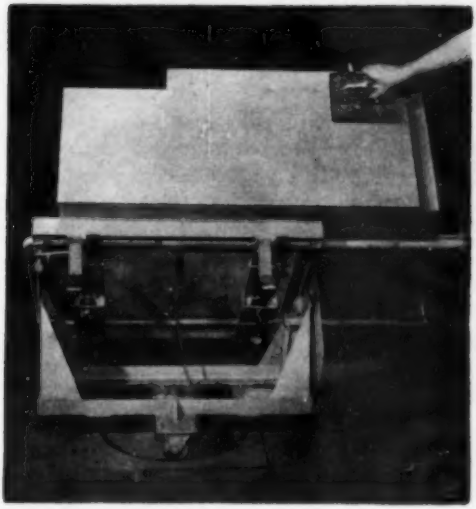

The versatile HRJ Rota-Tilt Table tilted for sanding or rubbing the end of chest . . . the pedal does it. Note how clamps drop down while end is being finished.

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Again, apart from a variety of conventional sealer compositions, there are available several newer types of sealers; and while there is no reason to accuse them of any yellowing tendencies, a finisher desiring a stable color finishing system should examine them for that property for the sake of complete assurance in choosing his finishing materials.

After the sealing operation, there usually follows uniforming, shading, toning, or glazing procedure.

Usually, the most satisfactory method for light or grey colored furniture is to use a pigmented lacquer type transparent wash, since this type of material is generally the most color stable.

Shading Lacquers, Toners, Uniforming Stains, Glazes

The use of oil-type uniforming stains or glazes is more dangerous from this standpoint in light colored furniture, for reasons stated elsewhere. Shading lacquers that contain dyes are subject to the same weakness of fading that is associated with dye light-fastness. Furthermore, in this case, a shading lacquer containing dye is higher in the system than, say, an NGR stain and is therefore more subject to light action with consequent greater danger of color change. Also, the layer of coloring laid down by shading lacquer is extremely thin and has no advantage of penetration, as in the case of stain applied directly to the wood.

When a shading lacquer has to be used, the choice should be with shading lacquers formulated from transparent pigments whose light fastness is vastly greater than that of dyes.

The method of examining or comparing light fastness of these materials is described under a section that follows:

Clear Lacquers; Yellowing; Water White Permanently?

Furniture manufacturers generally prefer a water-white or nearly water-white lacquer for their new pale greys or bleached light colored suites. If a lacquer is at all yellow the greys will show a greenish cast, which is definitely unpleasant to view, while the bleached or pale furniture will lose its whiteness.

In most cases where complaints on color change are made, the natural thing to do is to accuse the lacquer of yellowing. It is quite true that this may be the case, but we have seen from the preceding discussion, other components of the system may be responsible, either wholly or in part.

It is a mistake to choose a water white lacquer on the basis of its initial pale color alone, assuming that "if it is water white now, it will stay that way". True, some lacquer components will maintain their pale color for an indefinite period of time, but there are also substances that will rapidly change color on exposure to light.

The non-yellowing characteristics of a top-coat lacquer must be established by experiment and checked periodically to make sure that there is no batch to batch variation in this respect. As we know now, the action of light will be greatest on the top coat since it is not protected by other coats. [*To page 88*]

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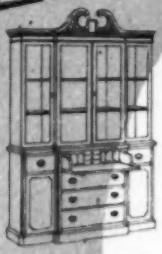

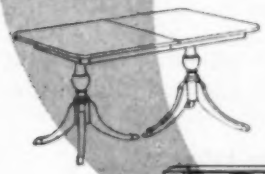

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It is often desirable to determine the color variation on exposure of one component only, eliminating as much as possible all other variables. To do this, we must choose a suitable substrate which we know will not change its color appreciably, or at all, during the period of exposure. The most convenient and readily available substrate chosen here is opal glass which may be obtained from any glass company at a reasonable cost.

Experiment III . . . . Lacquer on Glass

Choose a piece of opal glass about 6x12-in. in size. Spray a normal coat of lacquer under test on one half of the piece and a standard of comparison on the other half. Let it dry for 24 hours or more; then shield one half with foil, as before. Expose as before and examine it at 24-hour intervals.

It would seem that once a satisfactory system has been chosen, the limits of color tolerance have been established and a standard has been made up, the finisher might sit back and let production roll on, with assurance that he would have no trouble with color changes. This is not quite the case, since there is another factor to consider.

Effect of Rubbing, Polishing, Waxing, Buffing, Etc.

In processing furniture—that is rubbing and polishing, waxing, uniforming, buffing, etc.—many manufacturers follow the practice of rubbing after an overnight dry. In such cases, the final coat of lacquer while apparently dry and hard, still contains appreciable amount of retained solvents. The film is usually termed "green" at this stage.

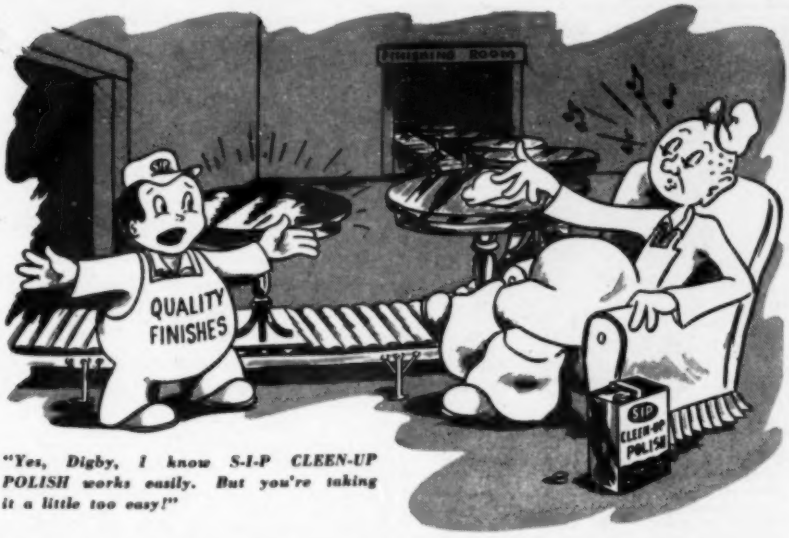
During processing, certain amounts of oil odorants, polishing oils, wetting agents and such may be absorbed into a film. Some of these substances have a definite tendency toward yellowing and may produce patchy yellow areas on furniture after exposure to light. It is advisable, therefore, to keep this in mind when establishing a complete finishing system, since *the final processing is definitely a part of the system.*

Older films have less tendency to absorb substances used in rubbing and polishing compounds, but it must be remembered that a thin film of processing materials' residue will still be left on the furniture and the satisfactory system must include an evaluation of these materials with regard to light fastness. To evaluate this, the complete system chosen should be applied to a 6x12-in. panel, complete processing procedure should be performed and then the panel should be exposed to light.

Summary of Facts We Learn from Tests

In conclusion, it will be seen that bleached and light colored furniture finishing presents a special problem to the finisher who, in addition to selecting the most durable and otherwise suitable materials for his finishing system, must also determine their respective resistance to the action of light, since early yellowing of his system may give rise to complaints and dissatisfaction from his firm's customers.

(Continued on page 90)



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Glidden Co. Advances Executives

Robert D. Horner, formerly an assistant to Clifton M. Kolb (retired), senior vice president and secretary of the Glidden Co., has been elected secretary. The new secretary of the company is 34; he is a graduate of the University of Michigan and Northwestern School of Law. He joined the Glidden Company in 1948. During the war he served as a pilot in the Navy and left the service with the rank of lieutenant commander.

John A. Peters, treasurer of the Glidden Company, has been elected a vice-president and will continue to serve as treasurer. Mr. Peters began his career with Glidden in 1920 in the accounting department, was made assistant treasurer in 1927 and treasurer in 1938. He is a member of the executive committee.

John Gilbert Elected V. P. of Ashdee Products

At a recent meeting of the board of directors, John Gilbert was elected executive vice president of Ashdee Products, Inc., Homewood, Illinois, manufacturers of "Paint-Miser" electronic paint-spray equipment. In his new capacity, Mr. Gilbert will be in complete charge of all activities of the company.

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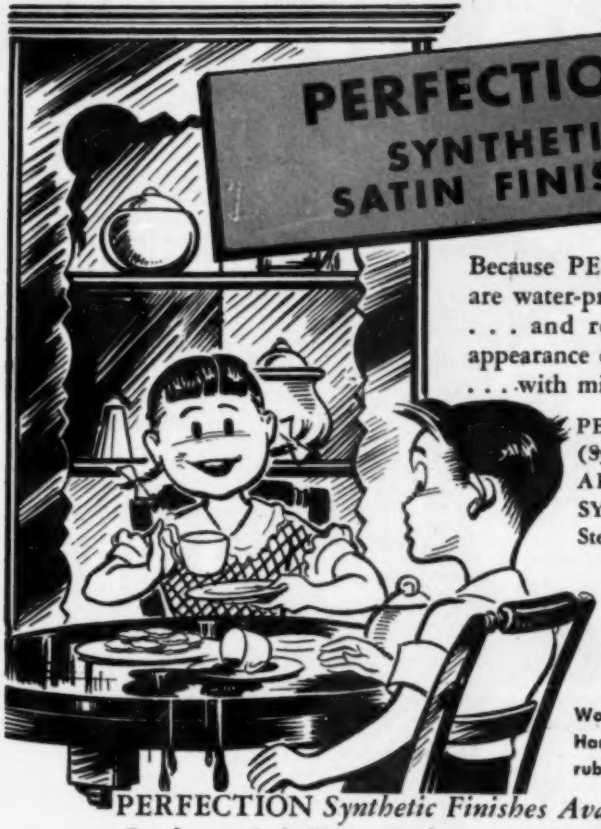

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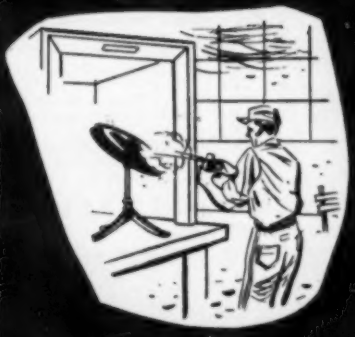

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We Specialize in It

In July 1951 issue, page 84, we notice an inquiry from D. J. Co. regarding a coating for Christmas tree ornaments. We have specialized in this field for many years and could be of service to this concern. Would appreciate it if you would supply us with the name and address of this concern so that we can contact them. —*The Egyptian Lacquer Mfg. Co.*

Information supplied.—*Editor.*

Pinholes in Mahogany

Referring to the article on page 122 of July 1951 issue—the one entitled, "Pinholes in Mahogany"—I find this interesting and am in comclete agreement with the author. However I was disappointed that in outlining his finishing procedure, he did not give more detail as to the nature of the "chemical solution" which licks this problem. May I ask for further information about this solution?

My experience, to date, has been that only double-filling will eliminate this difficulty, the first filling being done with thin "liquid-filler" which must be well padded in while wet. After drying one hour, fill in the normal way. Further information from the author of the above mentioned article will be appreciated.—*B.T.*

For further information we are pleased to refer you to Liquafill Mfg. Co., 823 Richard St., Dayton 3, Ohio. —*Editor.*

Finish for Plaster Ornaments

In regard to the published inquiry in July 1951 issue, page 86, for plaster ornaments, I am very much interested in the finishing and painting of plaster products. Please advise if you have run on to any good finishes for plaster.—*H.Co.*

So far we know of only two, which we are giving you by letter. There must be more.—*Editor.*

Tumbling Machines

Will you kindly send me the names of concerns that manufacture tumbling machines for tumbling wood products? I would prefer manufacturers to be located in Chicago.—*B.C.*

Try H. M. Kenyon, 9 South Clinton St., Chicago 6, Ill.—*Editor.*

Cleaning Polish

Kindly send us formula for a good cleaning polish for use on furniture after we refinish it with our special lacquer finish. It must not be gummy, must wipe off easily and be free from finger marks afterwards.—*J.U.S.*

We do not publish formulas for making polishes or finishing materials, as we believe that such mate-

rials, manufactured by specialists, are better and more reliable and more uniform in quality than anything that could be made up on a "homemade" basis.

In a letter we are naming the manufacturers of several excellent furniture polishes that meet your requirements.—*Editor.*

Conveyors in Finishing

Within the last few months we saw an article in this magazine concerning the use of conveyors in a finishing department. We seem to have mislaid these copies of the magazine and would appreciate it if you could send us reprints of this article.—*A. Furn.*

So many illustrated feature articles on this subject have been published in *Industrial Finishing* that we can only guess at which one you have in mind, so we are sending you a copy of May 1951 issue. We hope it's what you want. Please keep your copies of I. F. for future reference. Demand for them is so great that our supply of back copies is soon exhausted.—*Editor.*

Bronzing Powders, Fluorescent

With reference to article on page 84, in July 1951 issue, regarding bronzing powders in fluorescent colors, we will appreciate getting the names and addresses of manufacturers of these products.—*W.M.Co.*

Try Switzer Bros., Inc., 4732 St. Clair Ave., Cleveland 3, Ohio.—*Editor.*

Drying Equipment

We want to get in touch with a company specializing in drying equipment for furniture in the different finishing stages; also with a company manufacturing equipment for de-humidifying industrial premises.—*G.B.*

See advertisements in I.F.—*Editor.*

We Can Supply Them

We would appreciate receiving the name and address of B. Products Co. whose inquiry in reference to "Quick Air-Dry Enamel" appeared in the July 1951 issue of *Industrial Finishing.*

We have a product which we know will interest them. It is our Neolac 600 enamel line which incorporates the following properties:

Fast dry, tough and durable, contains no lead.—*Chamberlain Engineering Corp.*

Information supplied by letter.—*Ed.*

Luminous Pigments

Please advise us of a supplier of luminous pigments such as are used in the manufacture of luminous adhesive tapes for military procurement.—*J.W.Co.*

Try the New Jersey Zinc Co., 160 Front St., New York 7, N.Y.—*Editor.*

Fiber; Folded Brown Paper

I am sending you a piece of fiber which is used to weave chair seats and backs, particularly porch chairs. Can you tell me what this material is and where I can buy it?—*L.D.M.*

We believe this "fiber" is really folded brown paper manufactured by Frank Veale Mfg. Co., P. O. Box 5, 1709 Central Ave., Columbus, Indiana. It is probably tough, strong and durable so long as it is covered with a

good flexible coating and is kept reasonably dry—that is, not subjected to prolonged dampness or repeated heavy soakings.—*Editor.*

Articles About Flock

I would like to get a copy of your August 1950 issue. I am specifically interested in the article on flock. Also, I would appreciate receiving information as to flocking machinery manufacturers who might either sell or lease equipment. Our flocking problem is in connection with the manufacture of paper supplies such as greeting cards and Christmas seals and tags.—*C.C.A.*

We happen to have a copy of this issue and are sending it to you. Also, in a letter, we are naming concerns and individuals to whom you might write for information about equipment for the application of flock to various surfaces, masked and plain.—*Editor.*

Graining Wallboard

Being manufacturers of plastic coated wallboards for paneling, etc., we are interested in adding wood grain designs and marble designs to our line.

We are wondering what the most practical and economical procedure will be to simulate the effect of fine marble and choice veneers on plain hardboard and plywood. The hardboard we use has a smooth and even surface.—*P.&Co., (Copenhagen, Denmark).*

There are several methods of grain reproduction being used effectively in the U.S.A. These include: 1) printing the grain with a soft roller which picks up the ink from an etched copper plate; 2) use of decals; 3) adhering a grain-printed film to the prepared surface and then coating same with one or more clear protective top coats, etc.

In a letter we are naming concerns to whom you can write for more detailed information, prices, etc.—*Editor.*

Coating for Canvas

We would appreciate your sending us the names and addresses of firms from whom we could purchase canvas coatings.—*C.P.I.*

In a letter we are naming several companies, any one of which can probably supply what you want.—*Ed.*

Wood Crack Filler

In the July 1951 issue, page 82, we notice an item on wood crack filler in which you have supplied the information requested. Could we have a copy of this information? We manufacture smoking pipes and some of the wood requires a crack spot filler. We would like to know if this wood crack filler would be satisfactory for our needs.—*S.F.Co.*

In a letter we are naming three or four sources of supply for crack filler. One or more of the materials suggested should meet your requirements satisfactorily.—*Editor.*

Those One Inch Stripes

I am behind on my reading of I. F. I just came across G. T. Co.'s question entitled, "How Do You Put on One Inch Stripes?", on page 100 of March issue.

As an experienced finisher and sprayer, I remember the old automobile bodies were made of panels

INDUSTRY'S MOST VERSATILE FINISH

This is
CLAREMONT FLOCK

TINY LENGTHS OF COTTON, RAYON OR WOOL

Spray-apply it to Adhesive-prepared Surfaces

18 COLORS
—also Black, White and neutral for use in Plastics & Rubber formulations

Claremont Flock can be easily applied by air nozzle to glass, wood, paper, metal, fabric or plastic . . . of any shape or size. Manufacturing, packaging and textile fields are now achieving unusual product-finishing effects with this versatile medium. In appearance, the results equal the feel and allure of costly suedes and velvets. Also for finishing, coating, insulating, sound-deadening, shock absorption, bolstering, etc., Claremont Flock proves more workable—more economical. Write for samples and complete details.

The World's Largest

CLAREMONT WASTE MFG. CO.
CLAREMONT NEW HAMPSHIRE

Manufacturer of Flock and Plastics Fillers

nailed to a wooden frame; and to hide the nail heads and joint where two panels met we applied half-round aluminum mouldings in different sizes; some were pressed-on moldings. In refinishing those automobiles the mouldings were cut in black with a moulding brush; then striped in the center with a striping brush to proper sizes of 00, 0 or 1. I believe the same method can be used for G. T. Co. It would be cheaper in material cost than trying to mask and spray or even apply decals.

The moulding brushes come in ¼-in. to 1-in. width, the hair bristles being 3-in. to 4-in. long.—*F. Novotny.*

Sealing Porous Castings

Please send us further information about the article printed in July 1951 issue of *Industrial Finishing* entitled, "Sealing Castings Before Painting or Finishing", pages 124 and 125. —*R.R., Inc.*

"Cast Seal" and information about it came to us from Metallizing Co. of America, 3520 W. Carroll, Chicago 24, Ill.—*Editor.*

Hotpoint Automatic Washer

We read with interest the article by C. P. Nidrabsey, beginning on page 36 of July issue, "Finishing the Hotpoint Automatic Washer." Will you please advise us the location of the plant described and pictured in the article?—*D.S.Co.*

It's in Chicago, Ill.—*Editor.*

That Concrete Hardener

Please tell us the name and address of the manufacturer of "Flintcrust" Liquid Concrete Hardener, as mentioned on page 4 of July 1951 issue of *Industrial Finishing* magazine—*H. Oil & Refining Co.*

It's Flexrock Co., Filbert & Cuthbert, West of 36th St., Philadelphia 4, Penna.—*Editor.*

Wood Preservatives

Please send us the names and addresses of firms from whom we could purchase wood preservatives, such as Celcure, Wood Life, etc.—*N. Paint.*

If our reference cards are correct "Woodlife" is a product of Protection Products Mfg. Co., 1938 Fox St., Kalamazoo, Mich. "Celcure" is a product of Celcure Wood Preserving Corp., 1042 E. 8th St., Jacksonville, Florida.

In a letter we are naming additional concerns who can also supply wood preservatives of excellent quality.—*Editor.*

"It's a little frightening when you stop to think we may be on the threshold of a revolutionary idea . . . ."

Conveyor Line
Finishes Formulations?

THERE ARE no two Conveyor Line finishing operations in different plants that are identical. There are too many variables and too many special problems to be met, worked out and solved.

Not infrequently, an important part of the solution lies in the precise formulation of the finish to be applied. Materials, conditions and schedules vary considerably, and the finishes used must be developed and formulated to meet every exacting requirement.

Our chemists and service men have had many years experience in setting up Conveyor Line finishing operations for leading manufacturers everywhere.

If you are planning a new Conveyor Line set up or if you are planning to convert your finishing production to Conveyor Line Finishing, our technical men have the "know how" to set up your schedule of operations and to recommend the materials to be used. They are at your service, without obligation. A phone call, a wire or a letter will give you the details of the recommended procedure to work out and solve your particular problems.

OUR 76TH YEAR OF SERVICE

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Headquarters for Fine Finishes Since 1875

Manufacturers of

FILLERS—STAINS—VARNISHES—LACQUERS—SEALERS—PRIMERS AND SPECIAL FINISHES FOR CONVEYOR LINE PRODUCTION

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TREMENDOUS ADVANCES. . . . . .

have been made in handling and processing of furniture thru the finishing room!

DO YOU realize the vast tonnage that must be lifted, pushed and shoved?

—that 50% of the labor is non-productive.

—that practically all damage and breakage are caused by handling.

—that with a DeBurgh Conveyor all handling is eliminated, saving labor and damage!

A BETTER PRODUCT SECURED, THRU SCIENTIFIC DRYING

Besides labor reduction—Space is saved.

Productions scheduled and inventories are reduced automatically!

Prepare now for future business!

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Patented and Patents Pending

For Assembly, Finishing and Upholstery

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Laudable

Some of our customers make their product of awe-inspiring beauty. Others make tools that undergo terrific abuse. However, these customers have one thing in common. They have the advantage of using individualistic coatings prepared to their specifications along with the know-how in our Creative Studio.

For a finish that will win praise for your product, permit us to formulate a sample for you.

No obligation, of course.

No Tampering with Quality

ROCKFORD VARNISH *Company*

ROCKFORD ILLINOIS

Manufacturers of Protective and Decorative Coatings

Affiliate

GORDON BARTELS CO.

Roller Coating Specialists

Adhering Stencil to Silk Screen

We use the silk screen process for various jobs and have made some good reproductions on wood, fabric, glass, process cards, etc.

Our trouble is adhering the film to the silk. If we use a reasonably wet cloth with the adhering liquid for this operation, the film dissolves. If we use a drier cloth, the film comes off with the backing. The materials used are from Profilm Corp. The silk is 14 or 16, well stretched. We have no temperature or humidity control. We put as much pressure on silk as would seem reasonable when adhering film.

We have Mr. Zahn's book on this subject and all information given in your magazine. With all of this fine information we still have the trouble mentioned. I wonder if you could straighten us out or help us with some advice in regard to the best materials to use and any other information?—*H.E.H.*

In the first place I suggest that you write Profilm Corp. for a little booklet they publish on adhering stencils. Of course this may not solve your problem, but it may help.

Another thing is that every new piece of silk should be thoroughly washed to remove all size before any stencil is adhered. Also, the silk should be thoroughly washed after the stencil is removed so that no process material remains; otherwise, the next stencil will not stick to the silk.

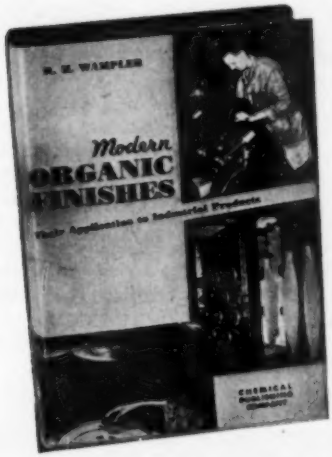
One of our local firms has the same trouble at times, and has found that the best way to adhere stencils to the silk is to saturate the rag with adhering liquid—that is, wet the rag to the point where it is just ready to drip, but does not drip. Then adhere about one square foot of stencil; use light pressure to press it onto the silk, and dry immediately. Then adhere another square foot of stencil in the same manner, and continue until the entire stencil is adhered. Wait about 15 minutes to allow the stencil to set to the silk before removing the backing paper.

By drying the stencil referred to above, I mean to use a clean dry absorbant cloth to press the adhered section of stencil to the silk, taking up the excess liquid and at the same time pressing the stencil to the silk.

I believe that temperature and humidity control has little to do with your trouble as very few silk screen processors have anything like this (humidity control). It is a question of experience in adhering stencils, and even those operators who work at this job all day every day, have the same trouble at times. It is difficult to get just the right amount of liquid on the stencil and I know of no rule of measure that may be followed to assure the correct [*Cont'd on page 104*]

Write for Catalog of
Paint Testing Apparatus
GARDNER LABORATORY
Bethesda 14, Md.

A "MUST" For All Finishers!



MODERN ORGANIC FINISHES

"Their application to Industrial Products"

This book contains 452 pages of the latest information on finishing. It describes modern finishing materials and equipment for their application, drying, conveying, etc., so that the reader may have an overall picture of modern industrial applications. Throughout, the main emphasis is on proper selection and use of materials to get the best possible finish at minimum cost.

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MATERIALS: Oleoresinous and Alkyd Varnishes and Enamels; Cellulose Lacquers; Spirit Varnishes, High Integrity and Specialty Finishes; Stains, Wood and Metal Fillers, and Miscellaneous Finishing Materials.

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Conveying Methods.

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Wooden Furniture and Cabinet Finishing; Prefinishing Wood, Plywood and Hardboard Structural Materials; Special Industrial Wood Finishing Problems; Finishing Paper, Cardboard and Fabrics, Finishing Plastics and Resin-Impregnated Wood; Cleaning and Surface-Treating Metals; Finishing Automotive and Railway Equipment; Finishing Sheet Steel Products; Finishing Iron Castings; Finishing Aircraft; Rubbing and Polishing Organic Finishes.

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The price is $8.50 and to eliminate bookkeeping we ask that cash accompany order. Sold on a money-back guarantee. Money refunded promptly and without any questions if you are not satisfied.

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WITH SILK SCREEN PRINTING

IDEAL FOR PRINTING RIGHT ON YOUR PRODUCT

- Radio Dials
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- Instrument Panels
- Code Numbers For Assembling
- Trade Mark or Manufacturer's Name

Hundreds of other uses . . . on wood, metal, fabrics, plastics. Do the work in your shop or sub-contract it to a nearby silk screen printer.

A silk screen department costs very little to set up and pays for itself many times through faster production.

WRITE DEPARTMENT IF 9-51 FOR FURTHER INFORMATION

THE NAZ-DAR COMPANY

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quantity each time. However, I believe if you will follow the suggestions given here you will experience an improvement in your operations.—*P. C. Bardin.*

Pigment Stain Settles

I have trouble with pigment oil wiping stain (blond and maple) in my dip tanks settling too hard. Could you refer me to some company that manufactures a blond and maple stain whose pigment doesn't settle? If there is no such company, what could be done to prevent this material from settling so hard.—*B.&S.*

I know of no manufacturer of finishing materials that makes a pigment wiping stain that does not settle or cake when left in the container over a period of time. The settling may be alleviated by the use of a pump with the return back to the tank, or by the addition of a pigment with the trade name of "Suspensoid."

The most certain way to get rid of the settling would be to spray from an agitated container. For dipping, the pump should provide enough agitation in the tank to solve the problem.—*Fred Boynton.*

Finishing Gun Stocks

Referring to a question and answer on this subject, as published in August 1951 issue, pages 88 and 90, if the concern is going to finish gunstocks for the armed forces I suggest writing to the Springfield Armory, Springfield, Mass., for a copy of U. S. Army Specification No. 3-216, 30 July 1948.

This specification gives full instruc-

tions on the requirements demanded by the government. Next the concern should contact a reputable supplier of finish materials, one that is able to furnish tung oil, volatile solvents and stain as specified in U. S. Army Specification No. 3-215, 23 September 1946.

The mixture of tung oil, volatile solvents, drying oil and stain is placed in a tank of suitable size and gun stocks are immersed for at least three minutes, then hung or racked to dry (air) for at least eight hours. When dry, according to Specification No. 3-216, and to the satisfaction of the government inspector, the gun stocks are ready for shipment.—*P.C.B.*

Our Finish Shrinks

We manufacture high grade occasional furniture on which we attempt to put a top-notch finish. However, we are troubled with a serious "shrinkage" problem. We work with mahogany, walnut, oak and korina and have the same problem on all of these woods; this leads us to believe that the fault lies in our finishing process which is as follows:

First day: Stain and fill. Second day: Sealer coat; sand with No. 8/0 sandpaper; shade and apply two coats of clear lacquer (app. 24% solids). Third day: Wet sand and apply third coat of clear lacquer; allow to dry overnight. Fourth day: Wet sand; compound with a prepared rubbing compound; buff with a lambswool bonnet on a portable rotary buffer. This buffing brings the finish up to a high gloss, with the surface as smooth as glass. After 24 hours, shrinkage has set in and the surface looks porous.

We have experimented with longer drying periods—up to five days after the final coat—and while shrinkage is not as great it is sufficiently ob-

S-Y TRADE MARK Stains

For outstanding, unusual color effects, try S-Y stains. They provide greater brilliance, transparency and permanence, so essential to the appearance and life of fine Furniture and TV-Radio cabinets.

The Stille-Young line includes stains of every type. It will pay to investigate!

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FASTER BURNING-IN, BETTER RESULTS WITH

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Made of just the right steel, ground and honed for proper concentration of heat. Easy handling—perfectly balanced like an artist's brush. Write for descriptive circular and prices.

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Spe-de-way
WOOD BLEACH
This single operation, controllable, Patented Bleach
- **Requires No Neutralization**
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Gallon Unit makes two gallons of bleaching solution. Application by spray or synthetic rubber sponge. Wood is ready for finishing in less than two hours.

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ADDS
Eye Appeal
American Graining Plates are photographic reproductions of fine woods.

AMERICAN RICHWOOD PRODUCTS CO.
Graining Plate Division
104 E. Mason St., Milwaukee 2, Wis.

vious to detract from the appearance of the furniture. Can you suggest a remedy?—*M.F.Co.*

It appears that the lacquer is designed to stand a lot of cold weather—contains too much plasticizer along with other high-boiling solvents. The finish is full bodied until the solvents start evaporating. When solvents leave the film the lacquer starts to "shrink," requiring more rubbing and polishing to bring back the full-bodied look or appearance.

Solution: Balance the resin and solvents to permit faster evaporation. Use a harder resin and bring the cold check down to about 12 cycles plus lower boiling solvents. This is one of the problems that I overcame recently at one of the factories where I spent some time as a finishing consultant.

Improper ventilation and a cold finishing room with a lot of draughts will also add to solvent retention. Adjusting the formulation to meet production requirements will eliminate the difficulty; force drying will also work wonders with drying problems.—*Fred Boynton.*

After studying your procedure very carefully, I believe that a likely source of your difficulty is in your two wet sanding operations. If you wet sand with water or with a weak soap solution, those operations will not contribute to shrinkage. However, if you wet sand with naphtha or mineral spirits, or with a mixture of one of these solvents and rubbing oil, you are quite likely to get serious shrinkage. Any mineral spirits or naphtha will soften the lacquer enough to give you a slight swelling. When these solvents diffuse out of the film, you get shrinkage. This is the same mechanism you will get if you rub the lacquer before the solvents have all evaporated.

I suggest that you do the first sand-

NO FINISHING JOB IS TOUGH
WITH
New Period Production Finishes

- Fillers and Stains
- Lacquers—Clear and Semi-Gloss
- Sealers
- Lacquer Enamels—Flat and Gloss
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Stymied by a tough finishing job? Then turn to New Period. You'll find the job becomes easy with this quality line of production finishes.

Try a 5 Gallon Working Sample at Drum Price

MANUFACTURERS OF FINE WOOD AND METAL PRODUCTION FINISHES

NEW PERIOD Production Finishes

ESTABLISHED 1917

NEW YORK WOODFINISHERS' Supply Co.

109 IMLAY STREET BROOKLYN, N. Y.

ing with water or a thin soap solution. The second wet sanding, prior to rubbing, may be done with rubbing oil or an emulsion of rubbing oil in water.

Some lacquers will shrink more than others, but in general, the ones that shrink least are the short brittle type, which may cause cold-cracking. I believe the best approach to your problem is to allow your lacquer to dry as long as possible before rubbing and to avoid the use of any such solvents as mineral spirits or naphtha in your sanding operations.—*R.H.W.*

Pittsburgh Coke & Chemical Co.'s Protective Coatings Division

The Pittsburgh Coke & Chemical Co., Pittsburgh, Pa., has announced the appointments of Mr. O. E. McCullough, Jr. and Mr. E. C. Vierling, Jr., as Assistant Managers of the Protective Coatings Division. They will be responsible for directing and coordinating the division's expanding sales, production, technical service, and development activities. Mr. McCullough will be associated with the Tar-Base Coatings and Mr. Vierling with the Synthetic-Base Coatings.

Both men will be located in the central office of the Pittsburgh Coke & Chemical Company, Grant Building, Pittsburgh, Pa.

American-Marietta Gets Arco Co.

American-Marietta Co., Chicago, announces the acquisition of The Arco Company of Cleveland, Ohio. Arco is now being operated as a subsidiary of American-Marietta.

The acquisition of Arco is in line with American-Marietta's successful policy of product diversification and specilization. Of particular interest is the prominent position which Arco occupies in the field of automotive refinishing materials.

Kenneth E. Clarke, a Vice President of American-Marietta, has been named President and General Manager of Arco. Howard E. Wise, President of Arco since 1933 and Charles B. Lansing, Vice President, will not continue with the company as they wish to devote their time to other interests. All other Arco personnel will be continued.

Young & Bertke Ovens

A new Young & Bertke brochure, just prepared, features all types of industrial and laboratory ovens . . . . and engineered systems for industrial production. These ovens come in various sizes from 24x24x24-in. to 60x36x48-in., in both one and two door models, electric and gas fired, with temperatures ranging up to 600° F.

These ovens feature air flow control which assures even temperatures, positive air intake to give the proper ventilation for heating compartment, sturdy construction and excellent insulation. All are equipped with the latest-type indicating controls, which show the inside temperature, as well as the temperature setting.

The heater circuit is interlocked with the circulating fan so that it will not operate when the fan stops circulating air in the heater compartment.

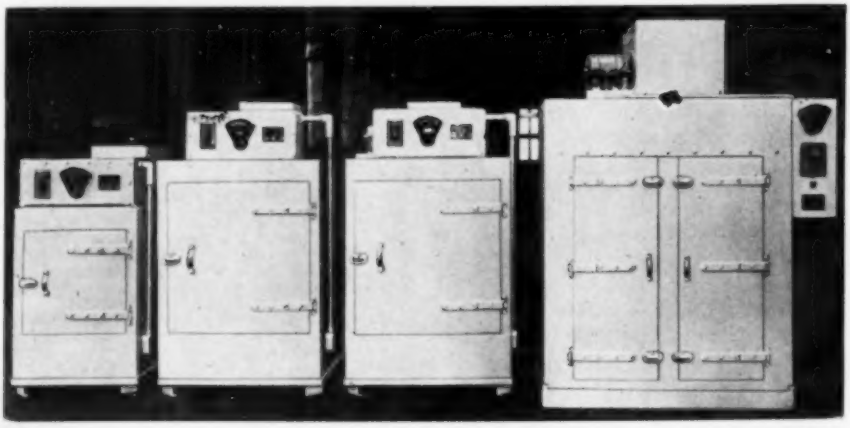
These ovens are built to specifications around the product to be finished.

Other ovens manufactured by Young & Bertke include rack, conveyor, drawer, vertical, portable, horizontal or tunnel drying types, with temperature controls or other special equipment. Also, steam heated ovens. Complete bake finishing systems are produced by Young & Bertke, 1122 Buck St., Cincinnati 14, Ohio.

Heat Resistant Lacquer

A new heat-resistant lacquer, C 5173, has been introduced by the United Lacquer Mfg. Corp., 101 W. Elizabeth Ave., Linden, N. J.

This lacquer was originally developed for finishing lamps for stage and photographic lighting apparatus



Some of the smaller ovens, electric or gas fired, each equipped with new indicating controls.

Speeds sanding of metal surfaces preparatory to priming and final finish

Speed the removal of burrs, grinder marks, and other defects in metal surfaces before priming . . . then sand primer coat to a smooth, level surface before final finish. Sundstrand Air Sanders with *Straight-Line Action* are available in single or double pad models, for wet or dry sanding on flat or curved surfaces, to handle almost any sanding operation on wood, metal, or plastics. See your local distributor or write us today for Bulletin IF-9.

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SUNDSTRAND AIR SANDERS

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PNEUMATIC DIVISION, ROCKFORD, ILLINOIS

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Cut those production costs and get that "quality boost" with WILKINSON PROFIT BUILDERS.

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A MODERN frenching material for fast production schedules. Fast building and self-lubricated, WILKINSON'S produces master-finisher results with fewer time consuming padding operations.

WILKINSON WAX RUBBING LUBRICANT

Scientific formulations for faster sanding and rubbing operations. Use finer paper, stay free from mineral oil bloom, clean up easily, and buff to a soft mar-resistant patina.

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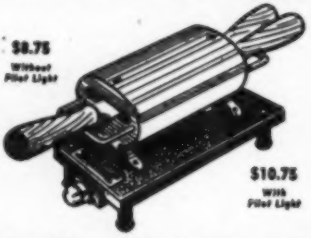

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to be used wherever temperatures up to 300°F. are encountered, as it provides excellent color retention and resistance to cracking and peeling.

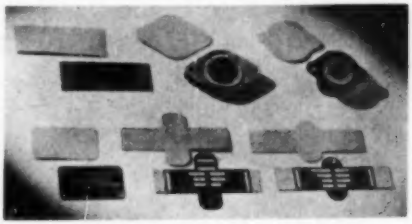
It will air dry in 15 minutes and is available in all colors, in flats, semi-gloss and gloss.

Fast Sealer for Shipping Cases

Boxeal Shipping Case Glue provides permanent, non-crystallizing bonding of box flaps that reinforces the rated strength of corrugated shipping cases as it produces a rigidly sealed container that resists stresses and strains vertically as well as laterally . . . requires destructive opening of carton flaps making it difficult to conceal evidence of tampered cartons. Boxes can be sealed by machine and hand brushing in 20 to 45 seconds. It operates on all varieties of container boards, all shapes of boxes, top flaps, bottom flaps, slide or telescope sleeves; a product of Paisley Products, Inc., 1770 Canalport Ave., Chicago 16, Illinois.

Pre-Cut "Quik-Masks"

"Quik-Masks" are handy self-adhesive, pre-cut masks that can be quickly applied, without moistening, to small areas requiring protection during painting or finishing operations. They eliminate cutting out masks by hand, tedious hand outlining, etc. They are excellent for mask-



Many shapes and sizes are available.

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Creates new life in wood

- **It is the Modern French polish**
- **Produces a beautiful, rich finish**
- **Can be applied easily with a pad**
- **Quick drying, durable, permanent**
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Order a Trial Gallon Can Today!

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West Coast Distributor: H. Behlen & Bro., Inc., 1755 Berkeley St., Santa Monica, Calif.

ing name plates, dials, gauges, machined parts, holes, threads, engraved and embossed letters, plated and polished sections or any shaped surface.

Brady Quik-Masks are made from "Scotch" brand pressure-sensitive masking tapes. They come pre-cut to the exact size and shape required, and are either mounted on cards, several masks to a card, or individually with each mask having its own folded liner on the adhesive side. Card-mounted masks are peeled from the card. When using individually mounted masks, you remove the folded liner from the mask. Hundreds of standard shaped masks are carried in stock, or any special design desired can be made to exact requirements from blueprints.

A new bulletin No. 160 and samples will be sent free upon request to the W. H. Brady Co., Dept. 237, 1602 E. Spring St., Chippewa Falls, Wisc.

Paint for Concrete Floor

Adhesion is the greatest factor in the performance of any floor coating. What is oftentimes mistaken for poor wearing quality is actually poor adhesion. Even the best quality porch and deck enamels break down and disintegrate when they are applied to concrete, because they don't have the necessary adhesion. They are fine for wood, but poor for concrete and other porous masonry surfaces.

"Oncrete for Concrete", according to the manufacturer, has high adhesion performance on concrete, brick and other porous masonry surfaces (inside and outside) because it is almost 100% free of driers and oils. This gives it a strong resistance to the alkali and moisture in concrete which cause porch and deck enamels to break down.

The 2-coat system involves applying

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ALL-PURPOSE PLASTIC for wood finishes!

Applies like putty... Sticks like glue!

FAMOWOOD is the answer...where wood finishes are important. Simple to use...efficient, lasting, time-saving, when filling wood cracks, gouges, nail and screw holes or correcting defects. Dries quickly, does not shrink. *Stays put* under adverse conditions. FAMOWOOD sands easily, does not gum up sander. *Takes spirit dye stains freely.* Waterproof and weatherproof when properly applied. Ready to use—*"right out of the can."* Fifteen matching wood colors ...with amazing matchless wood finishes.

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FAMOWOOD descriptive literature & price list on request. Distributor & Dealer inquiries invited, write Dept. IF-9

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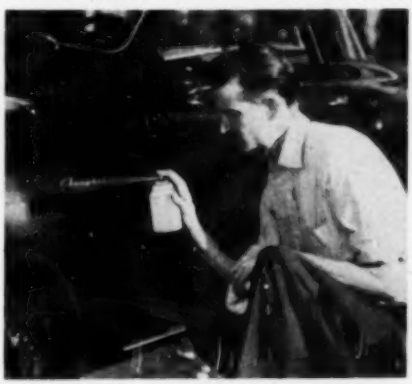
Manufacturers of...FAMOWOOD • FAMOGLAZE • FAMOSOLVENT

clear "Oncrete" as a first coat and colored "Oncrete" as the second. The first coat provides an adhesive and moisture barrier between the concrete and the second coat. This new method solves the problem of breaking down, peeling, cracking and checking. It is a product of Lowebco, Inc., 1525 E. 53rd St., Chicago 15, Ill.

Spray Touch-up Lacquer From Aerosol Container

Powr-Pak, Inc., 1488 Barnum Ave., Bridgeport, Conn., packagers of aerosol products, has developed a spray lacquer that restores the "factory finish" to damaged surfaces and is always ready for instant reuse. Special equipment has been built by Powr-Pak to handle the packaging of small lots of this new spray lacquer in a great variety of colors and formulations.

The Powr-Pak spray lacquer dispenser requires no experienced operators to apply, no thinning, mixing or brush cleaning. Service organizations or departments requiring special colors can have the formulation developed by Powr-Pak's laboratories, ap-



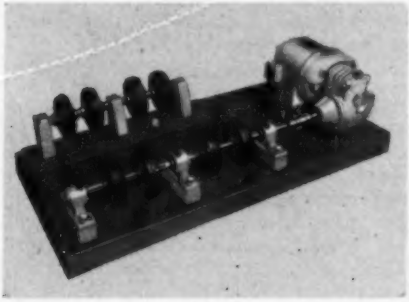
Matches color perfectly and is easy to use.

plied to the account's product with an exact color match and submitted for approval to the chemists of the manufacturer. The manufacturer's own label is used, if they desire, and on it proper directions and sales promotions are permissible. Any quantity of any color can be ordered.

Powr-Pak is making this convenient service available to manufacturers, wholesalers, distributors, etc.

For Rolling Drums

Reason for rotating a steel drum on power rollers is: 1) to agitate, stir up and thoroughly mix its contents, or 2) clean its interior by washing it with a small quantity of solvent supplemented, in some cases, with chain links to produce a mild scraping action.



Adjustable for anything from a one-gallon container to a 70-gallon steel drum.

The drum rolling unit shown in the accompanying illustration has eight sturdy rubber wheels which can be positioned to miss the drum's hoops, ridges or bung holes. In fact the rollers are adjustable to take anything from a one-gallon can to a 70-gallon drum. Standard sizes have one, two, three or four drum capacities.

The heavy duty motor and reduction gear can easily roll loads up to as much as 500-lbs. Speed can be constant or variable and range up to

Finco

COMBINATION STAIN - FILLER

New—Different—Unusual

This new combination stain-filler cuts finishing time 33 1/3%. Wipes easy—can't turn gray—won't fade, won't shrink. Investigate today!

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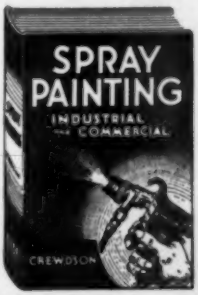
Contains 169 pages. Fully illustrated. Cloth. Price.....$2.00



This new book covers the fundamental principles of spraying technique, together with the latest developments and practices of this craft. Covers common paint pigments, paint extenders, enamels, oil and spirit varnishes, shellac, lacquer, synthetics, all types of modern air guns, spraying technique, spraying standard materials, spraying defects, their cause and remedy, flock and suede finishes, striping and lettering, pearl lacquer finish, also automatic spraying, electrostatic spraying, agricultural spraying and automobile spraying. Ends with the sprayers "Ten Commandments."

INDUSTRIAL FINISHING
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as much as 190-rpm. More information about this drum roller can be obtained by writing for Bulletin 265, to the process Equipment Division of U. S. Stoneware Co., Akron 9, Ohio.

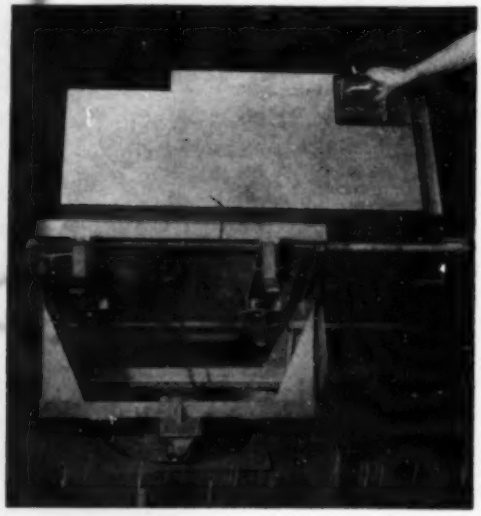
Tilts the Work for Easier Sanding and Rubbing

Every finisher will tell you that he can do his work easier, better and faster when the surface being worked on is positioned most conveniently for him—where he doesn't have to bend over, stoop down or reach far to contact the surfaces, and where he can see them clearly. As he tires, those surfaces that can only be contacted and seen by stooping, bending over or extending his reach—they begin to be slighted.

Now comes the HRJ Roto-Tilt table on which pieces of furniture or other products can be mounted and then turned or tilted easily, quickly and safely to present, in turn, each surface to the best position for the workman who performs any of the operations involved in finishing—particularly brushing, spraying, wiping, sanding, rubbing, polishing, highlighting, applying decals, striping, stenciling, touching up and doing burn-in repairs. Without expending extra effort he can see the surface being worked on and the results of what he is doing. He can use small power-driven tools more effectively and without danger of marring or damaging the surfaces on which he is working.

The Roto-Tilt table is versatile; it can handle narrow chests, TV cabinets or cases up to 70-in. wide. Padded clamps hold the cabinet firmly and safely without scarring or scratching any finished surface. Further information can be obtained from the manufacturer, H. R. Jones Tool & Supply Co., 1710 Spring Garden St., Greensboro, N. C.

Roto-Tilt holds the cabinet gently but firmly in what ever position is most convenient for the operator; it has pedal control.



Steam-Detergent Cleaning

Making available to industry the latest developments in steam-detergent cleaning for plant maintenance and industrial housekeeping, Livingstone Engineering Co., Worcester, Mass., announces a new Speedylectric Steam-Jet Cleaner Model JC-25. Heretofore, steam-jet cleaning of machine tools, windows, equipment and lighting fixtures has been found effective at steam pressures in the range from 125 to 145-psi, but field and laboratory tests have shown that faster cleaning can be obtained by stepping up the velocity of the jet without adding appreciably to the electric power requirements. The JC-25 is built to operate at pressures up to 200-psi.

The combination of this high pressure and the new Speedylectric Twin-Jet Steam Lance, with finger-tip control, gives super-jet velocity and

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In Step with the Times

JAMES B. DAY & CO.

CHICAGO 14

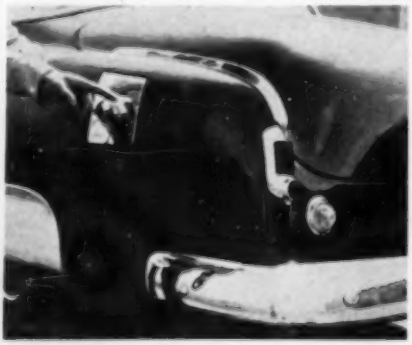
powerful cleaning action. Only 16-in. wide and 48-in. long, the JC-25 is designed for maximum portability in close quarters. The unit is completely self-contained with space provided on the all-steel truck to mount a water tank of sufficient capacity for three to four hours of continuous operation.

The JC-25 uses steam from the built-in high pressure Speedylectric boiler. Small quantities of solvents are used effectively and economically for they are not diluted by mixing with gallons of water at the jet. Dirt, grease, oil and caked on accumulations literally melt away before the powerful jet of hot dry steam and solvents applied instantly as needed under finger-tip control of the operator. There is no flooding of the working area, no smoke, flames or fire hazard.

Alternate for Chrome Plate

A test is being conducted by Allied Research Prdoucts, Inc., 4004 E. Monument St., Baltimore 5, Md., to determine the performance of an experimental zinc plate and Iridite finishing system as an alternate to conventional chrome plating for automotive hardware and brightwork.

Parts under test include the front and rear bumper guards, gas tank flap, fender skirts, door handles, heater duct and others. These were specifically chosen to provide comparative results from both interior and exterior hardware and trim located at various points on the car. Some of the parts are steel base metal, while others are zinc die cast base metal. All are finished with zinc plate, Iridite and either air dried or baked clear lacquer.



Mirror bright finish after 10,000 miles.

The 10,000-mile test route covered the nation and passed through many severe types of weather and terrain, including industrial areas, dirt roads, alkali deserts and the East and West Coast salt atmospheres.

Iridite is a chromate type conversion coating manufactured by Allied Research, sponsors of the test. It provides excellent corrosion protection and paint adherence to zinc, cadmium or aluminum surfaces.

At the present status of this road test the Iridite finished parts are showing excellent condition compared to the chrome plated parts, thus far indicating the practicability of the new finishing system in terms of appearance and corrosion protection.

Coating Protects Bright Metal

A transparent coating for polished and plated metals—a coating that protects against tarnishing, but "shows off" the luster of the metal—is announced by the Adhesives & Coatings Division of Minnesota Mining & Mfg. Co., 411 Piquette Ave., Detroit 2, Mich.

It is expected to be used primarily on stainless steel, chrome plate and polished aluminum—both on finished products and on all-ready-installed metal units in plants. It is not intended for copper, zinc, or their alloys.

The resin-base material was originally developed for application to automobile bumpers, grilles and

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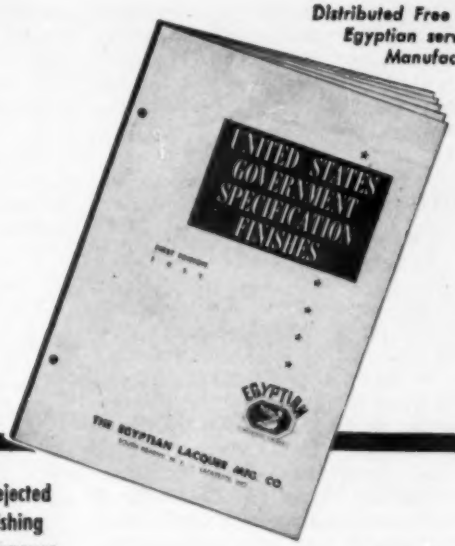
Distributed Free as an Egyptian service to Manufacturers.



Only the manufacturer of a product rejected by Uncle Sam because Government Finishing Specifications were not followed, can answer this one... He can total his loss in dollars, but who can pin a price tag on distraught nerves and irreparable damage to business reputation. To avoid just such a dilemma Egyptian, constantly on the alert for ways to serve the Product Manufacturer has compiled in simple booklet form practically all Government Finishing Specifications issued to date of this printing. Egyptian will make supplements available as new specifications are released.

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P. S. Should your finishing problem be urgent, an Egyptian Industrial Finishes Specialist will deliver your copy personally. He'll be happy to give you further information.

Lists

GOVERNMENT SPEC. NO.

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COMPLETE INGREDIENT DETAIL

•

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brightwork because of its resistance to weathering, shock and abrasion. It is now being released in brushable or sprayable forms, for general industrial use. Technical information is available upon request.

Strips Strippable Coatings

A new tool developed by Loyd D. Cain, an assembly mechanic at Texas Engineering & Mfg. Co., Inc., Dallas 2, Texas, has reduced the time required to strip strippable vinyl protective coatings off B-47 rear fuselage skins by approximately 70%. It operates without any possibility of damaging the skin—and it seals the edges of the stripped area thus preventing the inadvertent stripping of additional skin areas.

Cain's tool consists of a bottle with an air intake and two antenna-like dispensing tubes. The bottle is filled with the protective coating in liquid form and the amount dispensed by the antennae softens the edges of the area to be stripped just long enough to permit the stripping and then hardens to seal the remaining edges of the protective coating.

At TEMCO, Cain's invention is used primarily on the B-47 skins, but it should be applicable in any shop operation where strippable vinyl protective coatings are used.

Strips off part and seals the remainder.

New Conveyor Chain Announced

A new flat top conveyor that flexes in two planes—both horizontally and vertically—and can curve around corners with a radius of as little as 6-in.,

Chain operates over cut-tooth sprockets.

is now being marketed by Chain Belt Co., 1600 W. Spruce St., Milwaukee 4, Wisc., under the name, Rex FlexTop.

Designed primarily for tip-free conveying of bottles, jars, packages or small parts, FlexTop eliminates transfer points in a conveyor system.

CAREFUL

The care with which an industrial finish is compounded determines its success. Every step in the development of a finish is carefully planned and carried out at Mansfield Paint. Manufacturers know that our men understand their problems. We are careful to see that the paint we make meets the most exacting specifications.

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FINISHES FOR INDUSTRIAL PRODUCTS

Drum Pump Delivers Heavy Material to Spray Guns

A new pump, the Shelburne Hi-Vol, designed specifically for faster handling of materials from heavy mastics to enamels and lacquers, is announced by the A. Shelburne Co., 739 Ceres Ave., Los Angeles, Calif., manufacturer of heavy material spray equipment.

Engineered to requirements of painters, contractors and industrials who have requested the manufacturer for such a pump, the Shelburne Hi-Vol gives faster delivery by double action material pistons which force material through the lines on both up and down stroke of air motor. Production qualities of heaviest and lightest materials are assured with a steady, even flow. Unusually powerful in construction, its 9 to 1 ratio permits spraying of material to greater heights.

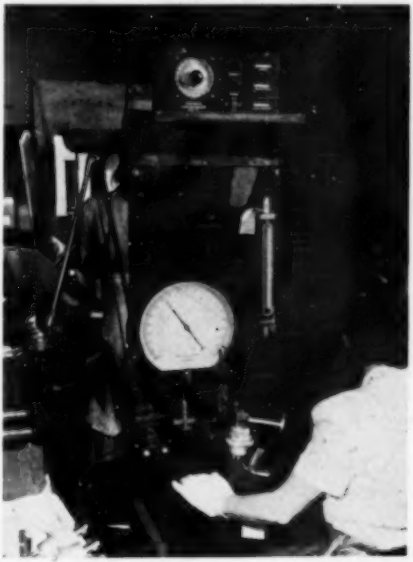
The new Hi-Vol is lightweight, easy to handle and saves time by pumping directly from material drum. Control of the pump is automatic by the exclusive Shelburne Model 5 Steady Flow Valve which shuts off pump and relieves all pressure when gun is not in operation.

The Hi-Vol is also available with agitator, oiler and pressure regulator for use on a 5-gun circulating system. Special units are designed on request.

Pumps heavy materials, drum to spray gun.

Inspection Monitor

A new device known as the Continuous Sampling Monitor has been developed by General Electric Co., Special Products Division, Schenectady 5, N. Y. It is designed to reduce inspection time and improve quality of the outgoing product.



Reduces inspection time on production line.

The method employs a statistically-designed combination of sampling and 100% inspection to insure within certain limits, an average outgoing quality limit (AOQL) at any percent

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Army and Navy Specification Finishes
Black Enamel E 3
Defense Equip't Protect. Enamels
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Aircraft Lacquers
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Randolph Thinners, Reducers
Aircraft Dopes—Nitrate Dopes
Randolac S F for Metal
Plywood Sealer A-17
Randolph Lacquer XF for Metal
Red Oxide Primers
Colored Lacquers, Metal, Series 2200
Acetate Butyrate Dopes
Undercoats S-G Primers
Infra Red S-G
Texture Enamels (Wrinkle)
High Bake S-G—white, colors
Metallic S-G Finishes
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Water-proofing Compositions
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Series 112—Plastic Lacquers
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The answer is know-how — as demonstrated by RANDOLPH in supplying GOVERNMENT SPECIFICATION FINISHES that help achieve production goals. Go into the factories where America's military and civilian needs are being met — and you'll find RANDOLPH giving the special qualities of a superior finish to products ranging from aircraft and ammunition to tractors and appliances.

Get a RANDOLPH FINISH in any quantity — on time! Write us today to avoid any finishing problems.

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DOPES · LACQUERS · ENAMELS · THINNERS

HERE ARE enumerated in this remarkably valuable book of 544 pages, all of the common and a variety of unusual and seldom heard-of defects and objectionable features that occur in paint, varnish, lacquer and synthetic enamel finishes; their probable, possible or real causes given; the effects described, and means of preventing and remedying these troubles fully outlined.

Chapters deal with these defects and troubles as they occur, 1) during or as a result of storage and preparation of materials before finishing; 2) when the materials are applied by various production methods and equipment; 3) during handling, processing or drying after application; and finally, 4) when and after the finished goods are shipped, displayed, stored or placed in service.

Defects covered include many more than could be named here, but to mention just a few there are: runs, sags, tackiness, films, too thin or too thick, slow drying, orange peel, alligatoring, wrinkling, pimples in films, pin holing, cracking, blistering, lifting, blee ing, blushing, blooming, discoloration, rainbow effects, gloss and dull areas, grained appearance, and scores of others.

Practical information is also revealed in reference to safety precautions to prevent fires or accidents in paint shops and finishing rooms, skin troubles of workmen, poison from paint materials and fumes.

By referring to the "subject Index" of 84 pages in back of the book, it is possible to locate quickly, the answer to any particular failure, cause or remedy.

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defects prescribed by the manufacturer or consumer. Sampling is employed when quality is good, and full 100% inspection is employed when quality is bad. The number of defective units that can slip by the inspector when sampling will not exceed the pre-selected percentage allowable for the operation.

A red light indicates that 100% checking is required, a white light that only sampling is needed. Large lights located in the control panel above the test stand inform inspection and manufacturing foremen of the quality status.

Telescopic Roller Conveyor Is Portable

The Wilkie Co., 5520 Arch St., Philadelphia 39, Penna., announces a new roller conveyor mounted on heavy casters so that it can be rolled from one job to another. An adjustable break-lock holds the conveyor securely in position. This conveyor telescopes from a minimum of 10-ft. to a maximum of 30-ft., and is available in 12-in. and 18-in. widths. It is made in nine different lengths, all of which extend to 30-ft.

Creams Prevent Irritation

It is said that skin irritations due to industrial causes fall into two groups. One group includes oils, solvents, thinners and other water-insoluble organic liquids. The other group is composed of water-soluble liquids, oils and organic solutions soluble in water.

Two types of cream designed to prevent dermatitis (skin irritation) are offered by The Boyer-Campbell Co., 6540 St. Antoine St., Detroit 2, Michigan. The oil repellent cream is called "Skin-Cotes" No. 1, the water repellent cream is "Skin Cotes" No. 3.

Microfilm Records Conserve Space

Kard-a-Film is the name of a method which permits the creation of active files by subject, name or number using microfilm as the filing instrument. Under regulations of the Defense Department, those firms producing any defense order goods must maintain a complete and accurate record, documented, of all personnel engaged in production work.

For complete information on Kard-a-Film and the Reader by which microfilm is blown up to full size or larger, write Remington Rand Inc., 315 Fourth Ave., New York 10, N. Y.

Weight Chart Shows Gallons in 55-Gallon Drum

A chart that enables you to determine quickly the number of gallons of material in a partly filled drum is offered by Henry A. Gardner Laboratory, Inc., 4723 Elm St., Bethesda 14, Md. Calculation requirements are that you know the weight per gallon of that kind of material and the net weight of the material in the drum.

Made of 18-gauge aluminum this nomograph or chart is 18½-in. by 21-in., and has depressed black characters on the neutral gray surface. A clear plastic strip which carries an accurately machined hairline is used to span rows of figures to determine the number of gallons in a 55-gallon drum. It is accurate to plus or minus one-half gallon.

Three Stage Metal Washer For Small Parts

This motor driven industrial precision cleaning machine measures 23-in. in height, 16½-in. wide and 17¼-in. long. The monel mesh work basket is 5½-in. inside diameter . . . triple nesting baskets fit into it to segregate small parts. Glass jars are 1½ gallon capacity. A chromalox heater unit and a separate motor-driven blower in the drying chamber dries the cleaned parts. The centrifugal action of the basket keeps parts stationary and prevents their damaging each other while being cleaned.

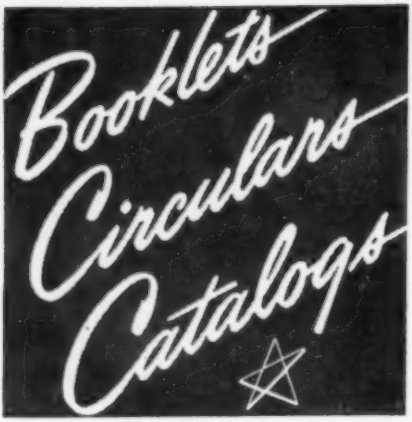
The washer is made by L & R Mfg. Co., 577 Elm St., Arlington, N. J.

For safely cleaning very small metal parts.

D. F. Martin Regional Sales Manager for Dagmar Chemical

Dagmar Chemical Co., Inc., Glenbrook, Conn., has appointed Donald F. Martin regional sales manager covering the New England States, New York and Pennsylvania. His headquarters are in Springfield, Mass.

Mr. Martin's two brothers Lloyd and Raymond have joined Dagmar's technical service staff.



Zahn Viscosimeter Bulletin

A new 8-page bulletin describes and illustrates exactly how to use the Zahn Viscosimeter for quickly and accurately measuring the viscosity of liquid finishing materials. For a free copy of this informative bulletin, write to Henry A. Gardner Laboratory, Inc., 4723 Elm St., Bethesda 14, Md.

Deoxidine Process Chart

The American Chemical Paint Co., Ambler, Penna., is offering, free of charge, a new "Deoxidine" Selection Chart which lists its various phosphoric acid metal cleaners and rust removers according to strength, temperature limits, rust and oil removal, etc. This chart also gives concise information on sequence of operation and equipment required in each process.

Belt Conveyor Catalog

Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wisc., announces the availability of its new Bulletin No. 51-81 on Rex Belt Conveyor Idlers and Machinery. The book contains information on all of the latest designs and developments of this equipment. Two pages of general engineering information will help in designing and specifying belt idler equipment.

Preparation of Aluminum

A thorough going discussion of efficient methods of chemically preparing aluminum for spot welding is provided in an 18-page booklet recently published by Oakite Products, Inc., manufacturers of specialized industrial cleaning and related materials. The booklet supplies specific recommendations on materials, procedures and equipment for performing the preparatory operations 1) cleaning; 2) deoxidizing; 3) rinsing; and 4) drying. The recommendations provided are based on actual, successful experience in hundreds of industrial installations preparing aluminum for spot welding with the materials and methods described.

Readers desiring free copies of this new booklet may obtain them by addressing 132F Thames St., New York 6, N.Y.

World Metallurgical Congress Meets October 14-19

From all of the free countries of the world will come scientists and metallurgists for a series of scheduled meetings at which broad interchange of ideas and projects under way will be discussed and weighed.

It will be staged along with the Metal Exposition in Detroit and is sponsored by the American Society for Metals.

Metal Cleaning Booklet

A 6-page booklet on cleaning metal in industrial washing machines is offered by the Industrial Division of the DuBois Co., 1120 W. Front St., Cincinnati 3, Ohio.

It is designed to help metal fabricators and finishers in the proper choice and use of metal cleaning compounds, and contains data on all basic types of metal cleaning compounds used in washers, alkaline, emulsion and acid.

Sherwin-Williams Co. Issues Brochure on TV Lacquers

The Sherwin-Williams Co. has prepared a new technical brochure on its TV Lacquers, products especially designed for fine furniture, including television and radio cabinets.

The new lacquers are described as a "development in quality finishes that meets new problems and opens new possibilities for finer furniture finishing." They were originally developed to meet severe application requirements which resulted from the growth of the TV receiver industry.

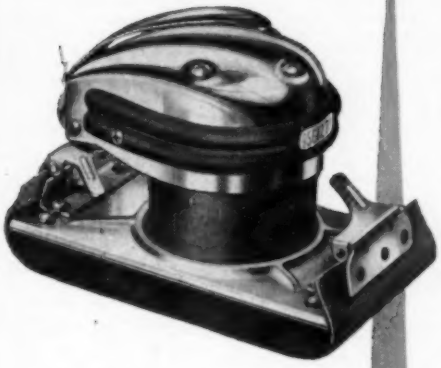
The brochure points out that the TV Lacquers combine these important properties:

1) Water-white . . . non-darkening on exposure to sunlight or heat.
2) Tough and mar-resistant.
3) Can be rubbed to a dull, medium or bright luster—or brought to a high polish.
4) Excellent print resistance.
5) Highest resistance to cracking from

(Continued on page 126)

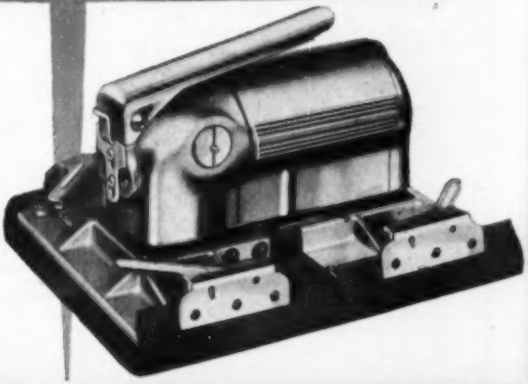
National Sanders

STRAIGHT-LINE *or* ORBITAL ACTION



National offers either orbital or straight-line action in its line of light-weight, fast, portable air sanders. Orbital action for speed and longer abrasive life . . . straight-line action for applying pattern or conforming to grain. No matter what type of sanding is most satisfactory for your needs, be sure and see your National Sander distributor. He is able to advise you impartially as to the machine that will best fill your requirements. Write the factory for details.

- ***Light-weight***
- ***Powerful***
- ***Vibrationless***



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BOOKS On Finishing Available

"MODERN ORGANIC FINISHES—Their Application to Industrial Products" (452 pages) New $8.50

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"METALLIC AND NON-METALLIC COATINGS FOR GRAY IRON" (76 pages) 1.75

"PAINT FILM DEFECTS — Their Causes and Cure" (544 pages) 12.00

"INDUSTRIAL SOLVENTS" (764 pages) 12.00

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exposure to wide ranges of temperature or moisture content in the wood.

The booklet presents, step-by-step, three commonly used application systems.

This brochure may be obtained upon request from The Sherwin-Williams Co., General Industrial Division, Cleveland 1, Ohio, or from the company's industrial zone offices in Cleveland, Grand Rapids, Mich.; Philadelphia, Newark, N. J.; Chicago, Atlanta, Dallas and Oakland, Calif.

Faster, Better Protection

Behr-Manning, Troy, N. Y., Division of Norton Company, announces the availability of a new informative literature packet, "Blueprints for Faster, Better Production." Coated abrasive specialties and solid abrasive oilstone specialties designed for the metal finishing fields are described in detail.

Contained in a folding cover that can be expanded into a permanent wall chart, "blueprint" case study discussions of individual finishing problems and their solutions are graphically presented.

Glass Blocks Replace Windows

The important role of glass block, especially as a replacement for worn-out window sash, during this period of material shortages, is outlined in a 16-page booklet just released by American Structural Products Co., Toledo, Ohio, a subsidiary of Owens-Illinois Glass Co.

The first section is devoted to illustrations of industrial plants where glass block installations have solved various problems of moisture, cold, glare and maintenance. The remainder provides architectural details and installation data.

Prevent Accidents and Fires

Practical ways to prevent industrial accidents and fires are contained in the new edition of the National Safety Council's 800-page "Accident Prevention Manual for Industrial Operations."

Popular response to the first edition, issued four years ago, was so great that work was begun immediately on an expanded second edition. Just off the press, it contains 256 more pages and 11 more sections than the first.

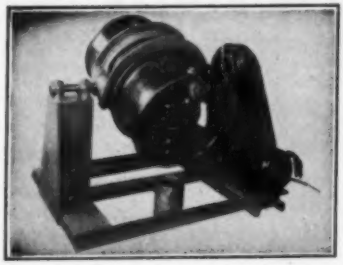
The book is confined principally to safety in the manufacturing industry, and is based on the premise that a major proportion of all accident causes are common to all industry.

In addition to the table of contents, each section of the book lists its own contents. There also is an exhaustive alphabetical index. The manual is bound in green and the cover has a bold design stamped in gold. Detailed description and price may be obtained by writing the National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

DRUM TUMBLER

. . . for mixing materials in suppliers drums

Will tumble any drum end over end at 30 rpm. Detachable crank on end of motor shaft makes it possible to turn down into any position for testing contents or draining. Portable ramps for fast insertion and removal of containers.



ASSURES:

- Uniform mix
- Easy inspection during operation
- Withdrawals in any quantity needed.

AVOIDS:

- The fire hazard of open drums
- Contamination of one product with another
- Cleaning of equipment between mixes
- Residual sludge

Send for descriptive literature!

THE VOL-U-METER CO., P. O. Box 54, Buffalo 16, N.Y.

Carton Sealing Wall Chart

Step by step instructions for sealing V3 and W cartons with tape to meet government specifications are illustrated in a new wall chart which is available free from Minnesota Mining & Mfg. Co., 900 Farquier St., St. Paul 6, Minn. The chart illustrates ten steps for sealing a carton's innerliner and outer seams, and for covering protecting labels with waterproof tape. Features and physical properties for the tape are shown on the back of chart.

The chart can be taped to walls or to the surface of work tables or benches for handy reference.

Tapes for Masking, Packaging

Tapes that meet government requirements for packaging, masking and other industrial jobs are listed in a revised catalog available free from Minnesota Mining & Mfg. Co., 900 Farquier St., St. Paul, Minn.

Listed in the catalog are 21 "Scotch" brand pressure-sensitive tapes for such jobs as electrical insulation; export packaging; masking against paints and chemicals; mounting photographs and printing plates (with a double-coated tape); identification of wiring and fuel lines (with colored tapes); sealing cartons against moisture vapor transmission; and sealing bottles and metal containers against loss or contamination of chemicals.

The catalog covers 11 official U. S. government specifications and 25 subsections, showing the corresponding tapes. Also listed is sound recording tape.

The Cost of Burned Records

A new 8-page folder pointing up the pitfalls of inadequate record protection has been issued by Remington Rand Inc., Management Controls Division, 315 Fourth Ave., New York 10, N. Y.

Titled "The Cost of Burned Records", the folder leads off with some grim percentages of the fate of businesses whose records have gone up in smoke. For example, 43% of companies so affected go out of business.

Emphasized also is the shaky position in which firms find themselves when they try to collect fire insurance and accounts receivable or to resist unjust claims. Government is also shown to take a dim view of the fire alibi when asking a company to produce its records.

A back page shows those measures in equipment and methods available to insure 100% protection.

Industrial FINISHING Editorial

Man of Distinction; Finish Supervisor

Yes indeed, the man who supervises the finishing or painting of products in a modern manufacturing plant is a "somebody" of importance. Being thoroughly familiar with the performance of new materials and methods of procedure, and knowing how to find and remedy troubles that occur in connection with production finishing, he now has added responsibilities, power and prestige.

Examples? They are numerous. Let's look in at a large manufacturer of steel products which are widely used as civilian goods and for defense purposes too. The firm has several factories in different parts of the U. S. A. These factories use tremendous quantities of paint. The company's engineering department developed and put into operation some remarkable improvements in the design of its products and in equipment and methods for making them.

Then an independent finishing consultant (a former foreman finisher) was invited in to check on the product painting procedure at one of the company's plants. After making a survey this man announced that he could save them 30% to 33% in the quantity of paint they were using, and that other substantial savings could be effected also. His plan included the use of modern facilities to prevent so much wastage of paint, floor space, time and manpower. Quality of the paint job was to be improved too.

Finally, the management decided to engage him and okayed his proposed program in that one plant. Well, what he accomplished exceeded even his own estimates. He was hired permanently and later became a member of the firm's engineering department. He was given authority to select and purchase equipment and to supervise improved layout for product painting departments in all of the company's factories. Now major decisions, expenditures and matters of policy in connection with the painting departments of this firm's factories must clear through this finishing technician.

Another typical example. A former foreman of wood finishing was called in as consultant at a plant manufacturing furniture on a mass production basis. He spent his first week quietly looking over everything in the finishing department and what bordered on it. During this time he learned what the management and its customers really wanted in the way of finish.

They wanted a full bodied finish, clear, lustrous and mirror-like in smoothness. Our consultant elected to begin his program of improvement in the rubbing room where, as he said later, "the management and hired help could see and appraise the results quickly." What he accomplished gave everybody a "lift"—a feeling of confidence and assurance that real improvements were on the way.

Step by step every phase of the finishing procedure was eventually overhauled and changed. Among other things one coat of finishing material and one completely conveyorized oven were eliminated. An innovation which the consultant started here is a thin sizing coat that is applied to the bare wood before final sanding. It seals the wood fibers, prevents grain rais-

ing, reduces to a minimum any light scuff sanding between subsequent coats of finishing material, and results in other benefits. Conveyor lines were improved and reset. Result: More floor space and employees available for other work, increased volume of production, a shorter finishing schedule, fewer rejects, less repair finishing, lower unit cost of finished pieces, a better looking more enduring quality finish that effectively withstands severe service, and increased demand for the company's products.

Many other examples come to mind. All of them emphasize the fact that more finishing supervisors and foremen have become men of distinction, accomplishment, power and prestige.

In conclusion, we might mention a case close to home where a finishing foreman was promoted to general manager of the establishment. He did an excellent job and the firm prospered. The new general manager's familiarity with finishing, his appreciation of design, color, luster and surface smoothness on furniture and fine cabinet work that buyers prefer, plus his knowledge of production costs and methods—the sum-total of these many important factors resulted in his company's finished furniture occupying an enviable position in relation to the products of its competitors.

Men of the caliber just cited have all or an important part of the responsibility and authority to decide upon what equipment, materials, supplies and methods are to be used in the finishing departments and paint shops of modern industry. They have attained their positions of responsibility through practical experience, some technical knowledge, a spirit of progressiveness and probably by more or less personal aggressiveness. They are not held back by any inclination or habit of clinging to old ideas, methods, equipment or materials; neither are they overly eager to seize upon something new until it proves itself in a practical and satisfactory way.

Here Turco Products, Inc., manufacturer of cleaning materials, has posed Miss Sally Turco doing the final polishing job on Helen Anderson's airplane which was an entry in the annual Powder Puff Derby from Los Angeles to Detroit.

Check Your Factory Lighting

Shorter hours of daylight are coming and more hours of artificial light will be needed in every manufacturing plant. Now, while we have daylight to work by, there is still time to check over and make any needed repairs, replacements, changes or additions to your lighting facilities.

Call in a lighting expert and find out if the lighting facilities are adequate at all areas where work must be done or where new or added operations may be performed. A different type of lights and reflectors may be desirable for utility, lower cost of operation, appearance and safety. The better the lighting the better the workmanship. [*Cont'd on page 130*]

BARRETT "FILWHIRL" ENAMELERS make easy work of many difficult coating problems

The Barrett Centrifugal Enameler

The Barrett "Filwhirl" Centrifugal Enameler provides a sure, clean and economical method of applying enamel or lacquer to parts or products that can be rotated. It saves coating material, time and expense. It is designed for bulk handling, and speedy production requirements.

It has proven highly successful in coating helical springs, clips, clasps, zipper parts, bead and link chain, toys, automobile and luggage hardware, misc. metal stampings, castings, etc. Good results are obtained with japan, lacquers, varnishes, paints, waxes. No drips or fatty edges.

Furnished in spindle post, fixed bowl, and carrier types, in several capacities. Safety features included and auxiliary equipment is available.

Send a few representative samples to be processed and submitted for your examination.

THE LEON J. BARRETT COMPANY
Designers and Builders of Centrifugal Machinery
1703 GRAFTON ROAD WORCESTER 1, MASS.

Excellent lighting in the plant *discourages and lessens the possibility of mischief of various kinds*—a point not to be overlooked by management.

Two more kinds of safety are involved, each one mighty important to all concerned. First is the personal safety of everyone who works in or even enters the plant. Good lighting, which enables each individual to see where he is stepping, what he is doing and what is going on around him, this is a tremendous help toward preventing accidents.

Second, but equally important, is safety from fire. Are all of the wiring, switches, outlets, connections, fuses, etc., adequate for the full load likely to be imposed upon them? Are they positioned where they are reasonably safe from abrasion, cuts, blows, excessive heat or the dripping of water or other liquids? Anything that may wear off insulation or contribute to its rapid deterioration or ineffectiveness is inviting a short circuit which could start a blaze or do other damage. Check over these items carefully; also, any electrical safety devices that you are depending upon for plant safety. Fires can be very costly and upsetting in a score of different ways.

U. S. Tape Specifications

Industrial Tape Corp., New Brunswick, N. J., producers of Permacel and Texcel pressure-sensitive tapes, has begun distribution of a new booklet, "Government Tape Specifications," which classifies pressure-sensitive tapes according to official U. S. Government specifications.

Purpose of the booklet is to assist purchasing agents and engineers in determining which tapes meet currently active government specifications.

The booklet can be obtained from sales representatives of Industrial Tape Corp., or writing directly to the Advertising Department of the company at New Brunswick, N. J.

Reasons for So Many Different Coatings

★ Often a friend only slightly familiar with the paint business will present a point of view as follows: "Why does the paint industry use so many different kinds of coatings? There are coatings based on nitrocellulose, ethyl cellulose, phenolics, chlorinated rubber, various vinyls, oils, cyclized rubber, cellulose acetate, natural resins, nitrogenous resins and alkyds.

"This list is not complete of course, and can be further subdivided. There must be dozens of alkyds alone. As for nitrocellulose lacquers—who knows how many types there are! Surely some of these materials must be better than the others. Why not use only the better materials and formulas, discarding the rest?"

Reason for the large number of coating materials and formulas is *the large number of end uses for coatings, each requiring different combinations of properties.* Coatings differ in resistance to water, alkali, acids, solvents, oil, sunlight, heat, shock and abrasion. They vary in their compatibility, gloss, flexibility, surface hardness, stability, dielectric strength, conductivity, brushability, color retention, availability, speed of dry, adhesion, and price.

Each film-former sold commercially has some property or combination of properties that makes it unique, price here being considered a property. New film-formers are introduced to the trade from time to time. If they are superior in some way to products al-

---

★ *Guest Editorial . . . Many readers can write an excellent editorial—two or three paragraphs that present a timely suggestion or valuable idea which will stimulate thought on a live subject. The Editor welcomes guest editorials and pays for those used.*

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use **NYLCO** laminations

No one sheet material protects all ways. Choose Nylco laminated barriers for sure protection, easier packaging and greater economy.

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Represented nationally by leading packaging engineers.

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SPRAYING MACHINE

- PORTABLE
- DRIVEN SOLELY BY AIR PRESSURE

Production up to 1000 pieces per hour

Uses regular exhaust booth

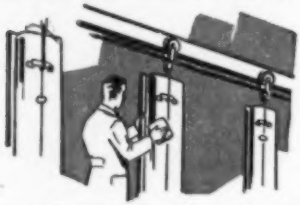
Only one operator is needed to load unfinished and remove finished work.

Write for FREE folder "S"

J. HOLLAND & SONS, INC.
MANUFACTURERS · DEALERS
276 SOUTH NINTH ST · BROOKLYN N.Y.

DUST-ALL Tack Rag

for better, cleaner finished jobs



Remove the specks, lint, dust from surfaces to be painted; wipe them off with a Dust-All Tack Rag; be sure of fine, blemish-free, finished jobs.

Get the Dust-All Tack Rag in the familiar Red Checkered Bag; also available in 150-250-500 yard rolls.

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A Protective Hand Cream Especially Formulated

for . . . Persons handling Polishes, Paints, Varnishes, Lacquers, Stains, Inks and Adhesives.

- Does not irritate, dry or crack the skin.
- Readily removed with soap and water.

FREE!! FULL SIZE SAMPLE.

Write

COMPO CHEMICAL CO.

Incorporated

MANSFIELD, MASS.

DISTRIBUTORS WANTED: Good territories open to men calling on finishing field.

ready on the market, they usually find a place for themselves.

An established product may have its market greatly reduced, but it is seldom entirely replaced by a new one that appears to have generally superior properties. Slow consumer acceptance of the new product may be a factor. The manufacturer of the coating may not want to change a formula that his customers find satisfactory. The new product may need a different application procedure or drying schedule. The net result is that as time goes by there is an ever increasing number of basic coating materials on the market. There seems to be no help for this situation. The best that the user can do is to be certain that the coating he uses is the right one for the job.—*E.V.G.*

More Lithopone by Glidden

Plans for a 20% to 25% expansion of the Glidden Company's lithopone operations in Collinsville, Illinois, are announced.

Lithopone facilities, now in the process of being moved from Baltimore to Glidden's Chemical and Pigment plant at Collinsville, will be supplemented. Production will be increased by 200 to 300 tons when this expansion is complete.

This move is part of the Glidden Company's extensive Chemical and Pigment expansion program which has been underway for more than a year. The Chemical and Pigment Division is a major supplier to Glidden's Paint and Varnish Division, and to other important paint producers.

Schools That Offer Courses in Paint Technology

The Joint Technical Education Committee of the Federation of Paint & Varnish Production Clubs and the National Paint, Varnish & Lacquer Association, has conducted a survey of the courses in Paint Technology planned for the 1951-1952 academic year.

According to information received so far, the following universities, colleges and institutes now offer such courses: University of Alabama, Los Angeles City College, Illinois Institute of Technology, Newark (N.J.) College of Engineering, Brooklyn (N.Y.) Polytechnic Institute of Technology and the University of Washington.

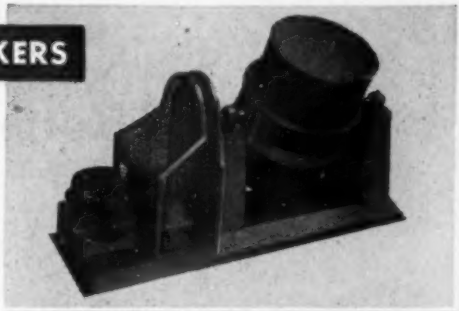
DEPENDABLE DRUM MIXERS

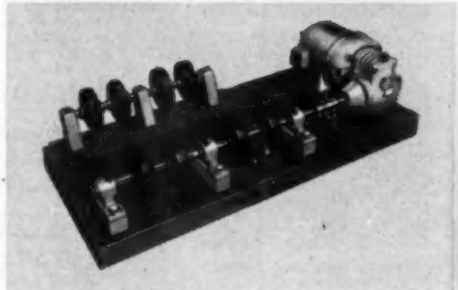
Rugged "U. S." Drum Rollers and Drum Tumblers insure long, dependable, low maintenance service in drum mixing operations.

Mixing in the drum saves time and money by:

- ★ Permitting use of supplier's drums
- ★ Eliminating costly "clean-up"
- ★ Avoiding contamination
- ★ Reducing handling costs
- ★ Providing maximum mixer versatility

Write now for Bulletin 265!





U. S. STONEWARE

AKRON 9, OHIO 169-C

PROCESS EQUIPMENT DIVISION

Use Filtered Air

THERE IS an air filter available to meet practically every finishing room requirement, and easily within the financial reach of every manufacturer. In crowded industrial centers, clean filtered air is needed if an acceptable finish is to be obtained, especially in white and light colored finishes. Even in suburban districts, dust and flying particles are always a menace to a clean smooth finish. Clean air is not a luxury; it is a necessity.—*P.A.M.*

Industrial Finishing's Pages Now Available in Microfilm

The complete pages of Industrial Finishing magazine for all 12 issues of Vol. XXVI (Nov. 1949 to Oct. 1950 inclusive) are now available to regular subscribers on microfilm, the facing pages being clearly reproduced side by side on a continuous strip of film 1⅝ inches wide and wound on a black pressed metal reel. The pages were photographed and made available in this form (convenient for storage and future reference) by University Microfilms, 313 N. First St., Ann Arbor, Mich.

The present price of a complete film rolled on a metal reel and double packed in a small mailing carton, is only $4.25 plus postage.

Quoting from a statement by University Microfilms—

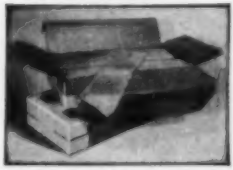
"Articles from back issues can be supplied on microfilm upon individual request. Our minimum price for this service is $1.00 and this service fee takes care of most short articles."

Industrial Ovens Appoints G. H. Goecke Sales Engineer

The appointment of George H. Goecke as sales engineer for Industrial Ovens, Inc., is announced by C. A. Litzler, Industrial Ovens' president. Mr. Goecke will work under the direction of J. K. Gillett, sales manager, and will use the Cleveland headquarters of the Company at 13825 Triskett Rd., as his base of operations. Industrial Ovens designs and builds continuous processing equipment for the rubber, plastic, textile, paper and wire industries.

NOW! Tack Cloth in Handy Rolls *or* Cut Bulk

Cut off any size piece and use as needed.



Already cut and folded, ready to use.

Now you can get Tack Cloth packed the way it's easiest for you to use—either in 150 yard rolls of 36" wide cloth or in handy cartons—100 or more Tack Cloths to the carton.

No matter which way you buy it, you can be sure that every square inch will **stay** SOFT and TACKY until the very last bit is used up.

The Cut Bulk size is 18" x 36"—folded to 4½" x 18" for easy handling. **All of our Tack Cloth is Spontaneous Combustion-Proof, Lint-Free and Wax-Free.** It's clean and sanitary—there's no waste.

Write today for complete information, prices and samples.

Baughn Chemical Products Company

"The Tacky Wiper Specialists"

7027 N. RAVENSWOOD CHICAGO 26, ILL.

Also Individually Packed in Glassine Envelopes —144 to the Carton.

A WARRANTY OF SATISFACTION IN EVERY CARTON

PINHOLING PROBLEMS on wood panels?

Many concerns use "Liquafill Sizing"

For information, write

THE LIQUAFILL MFG. CO.

823 Richard St. Dayton 3, Ohio

White Airplanes Cooler

NORTHEAST AIRLINES paints the top sides of its airplane fuselages with heat-reflective white enamel to reduce summer cabin temperatures while the planes are loading or being readied for flight at airports. Inside cabin temperatures are lowered by about 15° F.

Planes are readied for painting by treating the aluminum surface with preparations designed to remove all wax. A wash with a 10% solution of ammonia is followed by a hot water rinse.

A primer coat of zinc chromate is used under two coats of reflective white enamel. The second finish coat is applied several minutes after the first has "set up". It is estimated that the white coating, when dried, adds approximately 10-lbs. to the weight of Douglas DC-3 planes, and 20-lbs. to Convair CV-240 planes.—*Paint Progress.*

Wood Glue Course

From time to time Timber Engineering Co., 1319 Eighteenth St., N.W., Washington 6, D. C., holds an intensive 5-day course on the use of wood adhesives for military products.

The course includes characteristics and uses of each type of glue, how handled, stored, mixed, spread, cured, and how to detect and prevent faulty glue lines. Testing of plywood is also studied.

The number of enrollees is limited so that each man will have personal supervision from the five instructors headed by N. V. Poletika, manager of the Lab.

Paint Traffic Lanes

YELLOW or white traffic paint is not expensive. What about those traffic aisles in the plant? Have they been painted lately? You can use a chlorinated rubber base paint, mark off the aisles in late afternoon, and it will be dry enough by next morning to stand heavy traffic.

Well-defined aisles in a plant have a psychological effect. They promote neatness and order. Most people drive cars today and they observe directional lines either consciously or unconsciously.—*W.C.*

Smith-Davis Co. (L. A., Calif.) Adds to Sales Force

Dr. G. Klinkenstein, President of the Smith-Davis Co., manufacturers of industrial finishes, trade sales finishes, and maintenance finishes, located at 10751 Venice Boulevard, Los Angeles 34, California, announces the addition of another technical service field representative to cover part of the Los Angeles territory.

Bill De Valle, recently appointed to the Smith-Davis Co.'s sales force, has been assigned to cover a large section of the Los Angeles territory. Mr. De Valle has had many years of experience in the field of specialized production finishes. His experience dates back to 1925, so he is fully acquainted with the servicing of technical finishing problems.

Finishing Clinics Initiated by Maas & Waldstein Co.

The first of a new series of clinics on finishing developments and problems was recently conducted in New Haven, Conn., by Maas & Waldstein Co., Newark, N. J., Chicago and Los Angeles, manufacturer of industrial finishes. Subsequent clinics will be held in key market centers across the United States as an educational program to assist the finishing industry.

Mr. B. F. Ames, General Sales Manager of Maas & Waldstein Co., spoke at the New Haven clinic on the subject, "Organic Finishes as Substitutes for Plated Surfaces."

"The development of organic finishes that can be effectively used in place of plated surfaces, using such scarce metals as copper, brass, nickel and chromium, has been one of the most important results of our recent research work at Maas & Waldstein Co.," said Mr. Ames.

PAINT STRIPING TOOL

Works Like a Fountain Pen

FEEDS PAINT TO MAKE CURVED OR STRAIGHT LINES

Simply fill Tubular Glass Paint Fountain with paint or lacquer and Knurled Wheel Tip feeds paint evenly! Tips interchangeable. Master Paint Striping Tool complete with 1/16" tip, $1.00. Other complete tools with 1/64", 1/32" 3/64", 5/64", 3/32", 1/8" widths, $1.50 ea. Extra tips $.75; complete kit with tool and 7 tips, $5.00. Used by industry on production striping. See your dealer or order direct today.

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USE FOR STRIPING

- FURNITURE • TOYS
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- SCOREBOARDS
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- AUTOMOBILES
- CERAMICS and for adding new beauty to all painted objects.

RESTORE PAINT IN 2 MINUTES

PER GALLON WITH

MIRACLE BLUE - BOY

5 GALLON PAINT REJUVENATOR

Paints, lacquers and enamel products can be restored to their original consistency without opening the can. Units available to handle from ¼ pint to 50 gallon drums. Immediate delivery.

Originators of paint rejuvenating equipment---sixteen years---thousands of satisfied users.

Write for folder & prices

MIRACLE PAINT REJUVENATOR CO.
128 E. 10th Street St. Paul 1, Minn.

This new edition is an excellent text and reference book of 758 pages, containing a tremendous amount of authentic and complete information on industrial solvents and their uses—for example, in cleaning and finishing materials and wherever solvents are used in industry. The revised contents are organized and classified in easy-to-read, easy-to-find form for practical busy men.

Its practical contents are divided into 16 chapters, some of which include such headings and sub-headings as solvents, non-solvents, evaporation rate, boiling point, flash point, toxicity, viscosity, safe handling, hydro-carbon solvents, alcohols, ketones, acids, ethers, esters, etc. It contains many new charts, illustrations and conveniently tabulated material, all developed to help the reader grasp the factual information quickly. The alphabetical subject index covers 11½ pages.

This book will prove valuable to key men in the industrial field, who have responsibilities in connection with the cleaning, surface conditioning or preparation of products for painting, plating or polishing, and those concerned with the selection, purchase, storage, handling, testing or use of finishing materials and thinners for same.

Price $12.00—Money Back Guarantee.

INDUSTRIAL FINISHING

1142 N. Meridian St. Indianapolis 4, Ind.

Metal Cleaning Safety

DO YOU HAVE a series of tanks for cleaning and rust proofing metal products in preparation for finishing? If so, it will pay you to put in an iron grating floor around and between these tanks so that chemical solutions and rinse water, dripping from the parts in baskets as they are lifted by air or electric hoist, will drain down into a concrete pit beneath the iron grating.

This arrangement will prevent a sloppy floor, and you will find that it actually speeds up the transfer of loaded baskets between tanks. Operators know that any chemical solutions or water draining from the parts will go into the pit instead of on the floor where they have to stand and walk.—*M.J.*

Beadles Advanced by Du Pont

Frank H. Beadles, assistant regional sales manager at Chicago of the Du Pont Company's Finishes Division, has been appointed to the newly created position of manager, Plants Technical Section of the division.

Creation of the new position is designed to further an intensified technical program in the eight plants of the Finishes Division and coordinate the activities of the plant laboratories.

Mr. Beadles, whose headquarters will be in Wilmington, has been ass't. regional manager at Chicago since July, 1950.

REPRINTS AVAILABLE!

Paul Blackmore's 12-page article entitled

"HOW MUCH IS A GALLON OF PAINT WORTH"

as published in the August, 1950, issue of this magazine.

PRICE 10 CENTS PER COPY—

Stamps Accepted.

INDUSTRIAL FINISHING Magazine

1142 N. Meridian, Indianapolis 4, Ind.

Sound Film in Color Offered By DeVilbiss Co.

A motion picture titled, "Listen Herman", showing the opportunities existing in the appearance reconditioning of automobiles, has been produced by The DeVilbiss Co., Toledo, Ohio, and is now ready for showing.

This 16-mm sound film in color, runs 25 minutes 20 seconds. It is available through The DeVilbiss Company's regional sales offices and its many distributors throughout the country.

E. F. Frey, director of sales promotion and advertising of DeVilbiss, under whose direction the film was made, points out that while it is basically concerned with auto appearance-reconditioning and is aimed primarily at car dealers, paint shops, body shops, garages, used car dealers, fleet operators, bus and truck operators and automotive trade schools, the story is presented in such form that many other types of audiences would also benefit from seeing the picture.

It is of interest to anyone directly or indirectly concerned in promoting "appearance service" and the safe installation of equipment so graphically shown in "Listen Herman". Appearance service is of special interest to automotive jobbers, paint manufacturers and dealers, service and used car managers of automobile manufacturers, suppliers of related tools and materials as well as insurance underwriters and city and state inspectors.

Breidenbach is Com. Solvents San Francisco District Mgr.

R. W. Breidenbach, formerly of the company's Los Angeles Office, has been appointed San Francisco District Manager for the Industrial Chemicals Division of Commercial Solvents Corp. In this newly-created position, he will report to E. W. Bacigalupi, Western Regional Manager.

A graduate of Loyola University with a B. S. in chemistry, Mr. Breidenbach was Chemical Research Engineer with Lockheed Aircraft Corporation, and Chemist in charge of Research and Control of the Standard Vanilla Company, before joining Commercial Solvents in 1948. He is a member of the American Chemical Society and the Paint, Varnish & Lacquer Production Club.

DON'T WASTE LABOR

SCRAPING DOWN SPRAY-BOOTHS

USE LIQUID ENVELOPE

PEELABLE SPRAY-BOOTH COATING

Using expensive labor to scrape down spray-booths costs a lot more than peeling off accumulated overspray in big sheets. Safer, too. Order a 5-gallon Test-Sample at Drum Lot price.

BETTER FINISHES & COATINGS, INC.
268 Doremus Avenue, Newark 5, N. J.
122 East 7th St., Los Angeles 14, Calif.

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Metal Goods Corp., St. Louis, Mo., North Kansas City, Mo., Dallas, Texas, New Orleans, La.
Hubbard & Stow, Los Angeles, Calif.
M. E. Smith Co., Los Angeles, Calif.
C & H Supply Co., Seattle, Wash.
Hugh Russel & Sons Ltd., Montreal & Toronto, Canada

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You'll Rate Duralac

O. K.

in supplying the following to exact specifications, government or civilian.

- Lustreless, semi-gloss lacquers
- Wrinkles
- Primers
- Thinners
- Specialty Products

SEA-LAC

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84 LISTER AVE., NEWARK 5, N. J.

Grease and Paper Fire Hazard

THE OTHER DAY I visited a plant that uses dry spray booths. Side walls of the spray booths are covered with cup grease to which kraft paper is adhered to catch the overspray. The entire plant is equipped with a sprinkler system. They have approved fireproof lamps in and around all spray booths.

This grease and paper coating inside spray booths is a definite fire hazard—and it is entirely unnecessary. Several excellent spray booth coatings are on the market; they are easier to use and much safer. Why take a chance? Even a little fire may cost more than all of the spray booth coating material that would be needed to coat all of the booths for a year.—*R.F.*

Free Book on Industrial Floors

A new book of 12 illustrated pages 8½x11-in. points out why the installation of industrial floors for maximum life and minimum cost is a task requiring experienced planning, skilled technical execution and exacting cost control. It describes how floors can be designed and built to withstand moving and deadweight loads, shock and vibration, extremes of temperature, oils, greases, chemical and industrial wastes and other destructive agents. For free copy write Flash-Stone Co., Inc., 3725 Pulaski Ave., Philadelphia 44, Pa.

Metal Cleaning Booklet Free

A description of how a recently-developed metal-cleaning material, Oakite Compound No. 33, removes oil and rust in one operation, and also prepares steel and aluminum for painting, is provided in a special booklet available from Oakite Products, Inc., 132F Thames St., New York 6, N. Y., manufacturer of industrial cleaning and related materials.

Whether applied in tanks or by hand, Oakite Compound No. 33, the booklet states, has solvent and detergent properties which are effective in removing stamping and forming oils, rust preventives, carbon smuts, soldering and welding fluxes, identification inks and similar soils. In addition, this material

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Standard-Toch Chemicals Combines Old Concerns

M. H. Corbin, president of Standard Varnish Works and Toch Bros., Inc., announces the uniting of several concerns under the name Standard-Toch Chemicals, Inc.

Included are Standard Varnish Works of New York, Illinois, Michigan and California; Toch Brothers, Inc., R. I. W. Waterproofing Corp., Toch Marine Corp., and National Varnish Co., Inc.

This readjustment of the corporate structure brings together a group of companies that have pioneered in the formulation and manufacture of industrial finishes, developed new chemicals for the protection of masonry structures and have devised new paints and varnishes and color techniques for home decorating. Each of the companies is contributing a specialized knowledge of particular phases of the industry that will enable Standard-Toch Chemicals, Inc., to increase the scope of its service.

Walker Bulldog Tanks on production line at General Motors-Cadillac Tank Plant in Cleveland receive government-specification finish coat. Before painting, all metal parts are steam cleaned. DeVilbiss Co. photo.

Care of Portable Machines

PORTABLE machines and power tools need cleaning and oiling at regular intervals. In too many plants these power tools are often considered in the same category as a hammer, mallet or a hand screw driver—always ready for service but never needing any maintenance attention.

Either the men who use them or a specially designated maintenance man should be definitely charged with responsibility for cleaning and lubricating them regularly and seeing to it that they are always in first class condition. As a result of this maintenance the tools will last longer, they will be safer and will perform more satisfactorily while in service—*D.N.*

Joins Devoe & Raynolds Co.

Monte Carpenter has been appointed assistant district manager of the Pacific Coast District of the Devoe & Raynolds Co., Inc. Mr. Carpenter has long been in the field of building and construction materials.

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